Le Minotaur

Volume Sixteen

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Le Minotaur Magazine: Volume Sixteen

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Cover picture: A Woman with her bright bulb

If you have a submission for the **Le Minotaur** feel free to contact the magazine.

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A man is more than just his eggplant!

Amelia B

Le Minotaur

Le Minotaur Press of Vancouver is delighted to publish the Spring 2025 edition of ***Le Minotaur*** Magazine which serves to explore the beast in all of us.

In this edition there are several short stories by new authors. A special thanks to Aerial, Amber, Amelia, Brenda, Isabella, Melody and Sarah.

Please feel free to submit your short stories, prose, poetry and artwork to

penny_plenty321 @ yahoo.com

There is no fee to submit. There is no writer's fee provided by the journal for those who submit. The publishing rights remain with the author.

Le Minotaur welcomes submissions on a quarterly basis.

Artwork

Leslie's Perfect Form by Ariel

She is beautiful isn't she? A few weeks ago Leslie had a falling out with her boyfriend and wanted to do something bold to feel better. If you wonder why she is so slim it is because she is a vegetarian and exercises two hours a day.

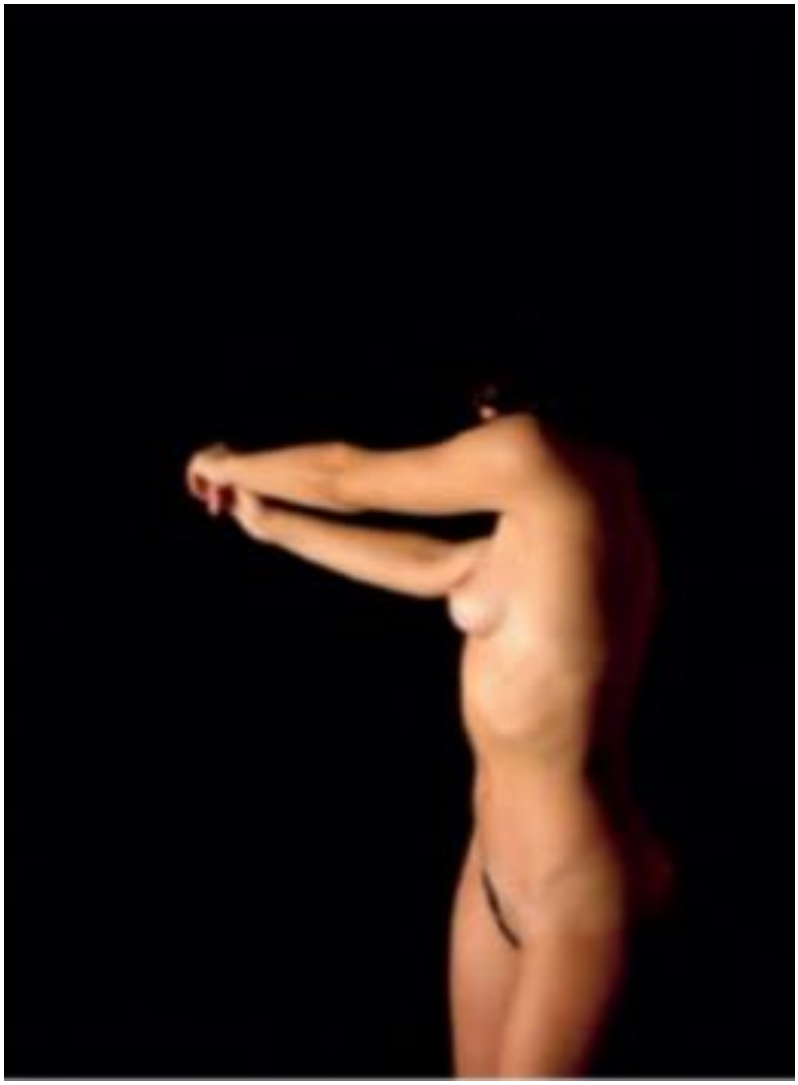
Beading by Brenda Z …

I had a project for Home Economics due for school. I also had a photography assignment due that next week and so I did both projects together.

This is my older sister wearing the beaded costume I made for her. I even made her the earrings. I made it for her as a birthday gift. She just turned 20.

Pictorial: Aren't I Perfect?

Autographical Motion Study by Melody …



Call for Minotaur Art

Le Minotaur Magazine invites our readers to send in their original Minotaur Art, to be featured on the cover or within our Magazine.

Send your submissions as either jpeg or as pdf and include an artist's statement of perhaps 200 words.

Prose

Hey Bonger, I have a Right to Fresh Air by Patrick Bruskiewich

{Full Title: *Hey Bonger, I have a Right to Fresh Air and Much More!*}

An addict bonging it up

This Sunday morning as I walked into my local library there was a young man ‘bonging it up’ a few steps from the front entrance.

I stopped and asked him whether he could go ‘bong’ somewhere else.

He of course pushed back and within a minute was throwing invectives at me. “Stop harassing me I will call the police.”

I smiled and invited him to call the Constables. I told him that when he is brought before the Magistrate, I would recommend he be required to do a

hundred hours of community service. His language got even more edgy. He was obviously an addict.

I smiled to him and said, “son … when an elder man asks you politely to do something … you should perhaps do what he has asked.”

His eyes were glazed over. He was clearly a stoner.

One man getting into his car made matters worse by shouting “leave him alone.” I asked this man to stand down and not intervene.

Behind me there was a middle-aged man who ushered me away. “He looks a bit crazy.” I nodded, turned my back and proceeded into the library.

I walked to one side near the entrance and watched as the young man went over to a librarian to complain.

The middle-aged man who had witnessed the interaction walked over to me and thanked me for intervening. “My children are here at the library.” He understood and appreciated what I was doing. He did not like the fact his children had to walk through the ‘bonger’s’ noxious drug vapours.

The ‘bonger’ finished what he had to say to the librarian. I let him meander over to the newspaper section of the library before walking over to chat with the librarian. I knew the librarian and was on good terms with her.

I told her he had been ‘bonging’ in front of the library and I had asked him to go someplace else, like across the street to the park. I pointed out I didn’t ask him to stop. Strangely he has a right to bong here in Canada but it is not an absolute right. He cannot do anything that might harm another person.

I presented the facts to the librarian to set the matter straight. She said she could not do anything because he was not ‘smoking’ near the entrance.

I said that he was not ‘smoking’ … he was ‘bonging’ which is quite different. I could see a flicker of acknowledgement in her eyes. She shrugged her shoulders and said there is nothing I can do. I smiled then walked down to the basement to sit at a computer and do some writing (I wrote this article). I could not get annoyed with the librarian since I knew she is both hard working and kind hearted.

In a few minutes the librarian walked down stairs to chat with one of her colleagues in the computer section. I knew that this was her way to invite me to come chat a bit more about what just happened. So I did.

I reminded her that 40 % of the people in our community were elderly who had health problems like emphysema, asthma, heart disease and the likes. If they walked through the young man’s noxious ‘bong’ vapor the active ingredients in his drugs might push them into distress.

I did not tell her this but this had happened to me once before. I ended up in the Emergency Room at Lions Gate Hospital. Someone was ‘bonging’ several floors beneath in my apartment building in the middle of the night and I had

to be transported to LGH by Ambulance at 3am. I went to the hospital because I was in cardiac distress …

I smiled at the librarian as I said, “I would hate to have to watch as you call 911 to help an elderly person in distress.” I put my hand over my heart while I said this.

“But there is nothing we can do about this.” She affirmed.

I reminded her that one of the basic principles of law in Canada is that “we act as a Good Samaritan.” We need to be sympathetic to the health needs of the elderly in our community and help to protect them from harm.”

I reminded her that I had asked the young man to ‘bong’ somewhere else and not put other people at risk. I had suggested he go across the street to the public park. It was a question of his addiction compared to the public health and safety of the rest of the community as a whole.

She knew to listen to me as I said this because she knew I had participated in some of the discussions that led to the drafting and enactment of the Canadian Charter of Rights and Freedoms. She quietly said she will bring the matter up with management.

Why have I written this short expose? There exists a bylaw in our community that makes it illegal to ‘smoke’ within 6 meters of a door or opening to a public building.

There are also proscriptions, which are restrictions, where drug related activity in our community are curtailed: near hospitals, schools, fire halls, ambulance stations, and I suspect even municipal hall. Proscribe mean that they are forbidden by law (in this case a bylaw). Ironically the ‘bonger’ is proscribed from smoking at bus stops, which happen to be where people gather to use a public resource — the bus. These are legal precedence.

It seems rather easy to extend these proscriptions to include public facilities like the Library, the Community Center and the like. Afterall, the elderly of our community, as well as vulnerable people like children, and mothers with their babies (born or yet to be born) gather at these places.

But is ‘bonging’ merely smoking?

From a medical standpoint, and a purely scientific one, ‘bonging’ is not merely smoking. There are drugs in the vapour that some people are terribly allergic to, and may react to. Particularly if they have heart issues. I happen to be one such person. Children, because of their smaller body mass and higher metabolism, are particularly prone to adverse reactions to the drug the ‘bonger’ was imbibing. And what about expectant mothers or mothers who are still breast feeding their babies.

In writing this article I am writing on behalf of a wide spectrum of people who are at risk because of the behaviour and indifference of the ‘bonger,’

I have written this expose as a legal precise to put on the desk of the Mayor and Council. Our Mayor happens to be a lawyer and can perhaps appreciate the nuances.

As a Canadian I have a right to fresh air.

Here's the real kicker. As a person, and as a Canadian, I also have the right to informed consent when it comes to all things medical or drug related.

The 'bonger' doesn't have the right to expose anyone to drugs that may ultimately harm them. He can go get high by himself somewhere else but cannot inflict harm on others. That is ultimately why I asked him to go 'bong' somewhere else, like across the street at the park and not near the entrance of the library.

There is an interesting twist to my argument in that the right to medical consent was set out as a Fundamental Right under International Law in the Nuremberg Tribunal Rulings from 1946.

This 'bonger' in expressing his personal addiction (which involves drugs and is a medical procedure by the way) … is in fact violating a right that is far more fundamental than his personal life style or addiction … it is my Fundamental Right to not to be inflicted upon by his drugs without informed consent.

The 'bonger' is violating both my Charter Rights as a Canadian as well as my Fundamental Rights to not have to inhale his noxious, drug laden fumes.

The ‘bonger’ does not have my consent to expose me to his drugs … in asking him to go ‘bong’ somewhere else I was in a real and tangible fashion expressing ‘due process’ under Canadian Law.

As a Canadian I have a Fundamental Right to informed medical consent.
When I asked the drug addict to acknowledge he should listen and do what an elderly person asks of him … he discriminated against me because of my age and my health needs. But that is another matter isn’t it?

No, it is not! What he did was both disgraceful and hateful.

I didn’t ask him to stop. I merely asked him to ‘bong’ somewhere else. That alone would get a Magistrate to sentence him to 100 hours of community service, perhaps in and old folk’s home or in the palliative care department at LGH. Expressing hatred is also a serious matter the Crown frowns upon.
On behalf of the Crown, I command the Mayor and Council to pass a bylaw that makes it illegal to bong near and adjacent to all public building in our community.

Why have I Commanded the Council on behalf of the Crown? The Crown is indivisible. If the Mayor chooses not act on this public health and safety mater the Attorney General of the Province of BC will. If the Mayor passes the buck so to speak, the Attorney General may inquire as to why and perhaps seek legal redress.

By the way, my nose told me it was not marihuana that he was ‘bonging.’ Although I have never touched the stuff, I know what marihuana smells like.

Ask yourself if it is an opioid like Fentanyl in his ‘bong’. One lungful of Fentanyl vapor and an elderly person or young child would go into cardiac distress. God only knows how this might affect a baby in a woman’s uterus! Need I say more?

The next time I see him ‘bonging’ in front of the library I will take his picture and send it to the Mayor and recommend to the Mayor that the young man may be allowed to use the library provided he promises to go ‘bong’ somewhere else.

Why can’t the ‘bonger’ just cross the street and get high in the park. far away from any people he can cause harm to?

If the ‘bonger’ tells the Mayor , the librarians or a Constable to take a long walk off a short pier (I am being far more polite here than the young man really is) then the they can bar him from setting foot in any community facility, starting with the library.

This is the much more to consider to this particular issue. As an elderly Canadian with health issues, I have a right to fresh air! I also have a Fundamental Right set out in the Nuremburg Laws to informed medical consent. I don’t consent to having to be exposed to any ‘bonger’s’ drugs!

{First published at *Medium* Feb., 2025}

Totally Chill …by Sarah D

[**London**] So we were all around 16-17, in a UK college, attending what was probably the first life drawing class for all of us. The man modeling was in his forties, obviously did this often, and he was not shy in the slightest. He was chill. The teacher was weird and kept yelling at anyone who spoke out loud while drawing. It definitely made everything feel a lot more tense and awkward.

The lad next to me was one of the few males in our class, and one of two that were also straight. He had never seen another guy's privates before, and he was clearly struggling with the concept. I had a feeling it was something to do with the fact this guy was pretty devoutly religious also. The whole time, he was bright red in the face, and his whole body was shaking like a leaf.

Being a bit of a mother hen, I asked him if he was alright, and he said that he didn't feel well, and that he couldn't believe this was happening. Through the first two poses he did okay, although his line control was more off than normal, and there was just a big blurry mark around the genital area.

I gave him a bottle of cola from my bag and asked if he wanted to sit down. The teacher freaked out about us talking, but he just nodded and went to sit behind me. He then freaked out, upon realizing that everyone else was drawing the genitalia! He didn't realize we were supposed to, and for whatever reason, he became terrified.

The teacher had marched over by now to see why he was sitting out. She saw his drawing then went on an angry rant about artistic integrity, how childish he was, and about how the model was a precious resource that we had limited time with.

She forced this poor lad up and back to his easel, and she held his arm to direct him in drawing the genitalia. This poor boy stood looking like he was vibrating in fear as the woman guided his hand.

Then he just dropped. Like a sack of potatoes. The teacher managed to keep him from hitting the floor too hard, since she was holding his arm, and me and another girl rushed over to help her get him back into the chair. He woke up very quickly after a few seconds, overwhelmingly embarrassed, and he started making excuses. The teacher let him sit it out after that, where the poor guy just sat with his face in his hands, miserable for the next twenty minutes while we finished up and the completely unfazed model left.

This poor sixteen-year-old guy didn't turn up to life drawing classes after that.

This teacher absolutely contributed to this student eventually dropping out. It's a shame, as he had a ton of promise in his other classes.

In my next college, our life drawing class was so much better. The room was warmer, more intimate, and had fewer students. We were allowed to chat amongst ourselves, including with the model, so long as we didn't make her laugh so much that she moved.

The model would even hang out in a robe with a cup of tea, looking at our work during our breaks. It was a totally different experience when everyone involved has a good sense of humor and is chill about the entire process!”

This art studio was totally chill …

Pictorial: Is Man truly made in God's image?

How Julia Childs Saved my Life by Isabella Montsouris

[**Montreal**] The last four or five years have been difficult for me and my family and friends. We have all had Covid-19, even when we were vaccinated. This was a surprise for us. Sure after vaccination the illness was not as bad to us as for those who were not vaccinated. But we found that if the first and second vaccination were not the same, we got Covid-19 nonetheless.

I don't think many of my family and friends got the proper pairing of vaccination. This mix and match approach to vaccination just didn't make sense to me. So I took my first vaccination and waited until I could get the properly matched second vaccination. This took nearly a month.

This was around the time a nurse in Montreal sued the Quebéc Government to get a properly matched second vaccination.

Most Quebeckers didn't care … they just wanted to be vaccinated. But when I read the nurses comments in the media I decided to ask for a properly matched second vaccination. While I was waiting for my second vaccination I came down with one of the more potent varieties of Covid-19.

My illness … which my doctor called 'une grippe' … lingered on for many weeks. Each time I went to my doctor hoping to be treated for one of a number of my ailments she would prescribe something in the hope it would help me feel better.

My period was particularly bad the month I came down with Covid-19 and since then my periods have been at different times and with different flows. Some months it is light and some months it is not. The light months I have a day where I feel tired, but when it is not light I feel so bad I have to stay home in bed for two or three days, close the curtains and suffer through migraine headaches, something that has never happened to me before.

My doctor tells me the flora in my vagina has changed and when I have my period I would cramp more than I did in the past, and had fishy smelling discharge (even though after checking this was not caused by bacteria or anything else). All the doctor could say is 'my body was changed by Covid.' That's a scary thought isn't it? I just want my body to go back to the way it was before.

My doctor suggested I take nutritional supplements and mega vitamins, thinking my body was not taking in enough of these things. This was very costly and I managed to spend over $ 500 before I stopped. All these nutritional supplements and mega vitamins did was make me pee so often that I could not be more than a few steps away from a bathroom.

After a few weeks my urethra, bladder and at least one kidney was infected. I also got an infection … you know where. My elderly aunt told me I had all the symptoms of menopause and yet I am not yet thirty years old. OMG!

I stopped taking nutritional supplements and mega vitamins but things did not go back to the way before I started to take them. Things remained like that

for nearly a year. All my doctor could say is '*you have long Covid … you have long Covid*.

I finally gave up on my doctor and thought I should perhaps try something else. I got in touch with some of my friends and asked them how they have moved on with their lives after having Covid-19. Most did not have any advice for me.

One of my friends said he opened *Julia Child's Cook Book* at the beginning of the Covid epidemic in 2022 and started to cook vegetable recipes from the *Julia Child's Cook Book* several times a week.

While he got Covid too, around the same time I did and perhaps even the same variety as I caught, he managed to recover faster than I did even though he is forty years older than me. He has had a mild case of long Covid since contracting the virus in 2021 but have had few of the other problems.

I know him well enough to ask about his reproductive health and shared with him what I have struggled with ... and he tells me he contracted Covid his testicles shrank to half their normal size, but that didn't bother him for he knew this was his body telling his testicles to hold off making sperm. He tells me that he suspects his reproductive system is now even better than before Covid-19 (he passed through Andropause a few years before Covid-19).

So I followed his advice and downloaded a pdf version of the *Julia Child's Cook Book* and started to make some of her vegetable recipes several times a week. What he explained to me is that if we feed our bodies well then our

digestive system will not only repair itself but will also know what nutrients our bodies need.

I am now feeling much better and my reproductive system seems to back to normal. It may sound strange but I think Julia Childs may have saved my life. But how can that be? She passed away years ago. Well, Julia Childs was a bright lady who introduced many women (and men too … I guess) to fine French cooking. It may seem strange but we don't have much of that here in Montreal. We have many fancy restaurants but not that much fine cuisine as far as healthy living goes. Does that make sense?

The other day I texted my fiend and asked if he minded if I come to visit and stay with him for a few weeks this summer. I told him I want to thank him personally. He texted me back to ask me what my boyfriend would say about me coming to me staying with him for a few weeks?

I texted him back to say I can always find another boyfriend can't I … the thing I know about my friend is he has many friends who are women but does not have a girlfriend. He is divorced and has learned from his life experiences not to rely on any one woman, but to be happy with many simple and happy friendships. You know, this makes sense.

I am glad I am one of his simple and happy friendships!

The Anxious Writer by Shatell Power

[**Vancouver**] I suffer from anxiety. I didn't know I was an anxious person until I was well into adulthood. It's my default state. For years, whirling thoughts have been my power generator, but this seems different from most other folks. I've always been viewed with suspicion, longsuffering, and irritation by a lot of other people. I'm hyper. I'm outspoken. I'm blunt. I'm loud. I take things too literally. I ask too many questions. I'm kinda … much. And even as a little kid I knew it. I knew I was weird and talked too much. and that the words and noises pouring out of my-mouth in a cascade were drowning whatever empathy others might feel for me. I saw faces harden, eyes roll, smiles shrivel into white-lipped aggravation, yet still my words fountained out of me in an attempt to appease, amuse, or elicit something other than hatred or disinterest.

I leaned to shut my mouth sometimes. I binged and purged on words, babbling nonstop some days, growing nonverbal on others. I learned to go within. Some speak of going within as a metaphor, but that's not how it is for me. In times of silence or waiting, I close my eyes and look at the inside of my eyelids, marveling at the hazy yellow-pink of sunlight through my skin. I press my hands against my ears and listen to the ka-chunk ka-chunk of my heartbeat, or to the gooshy sounds of myself swallowing, sound travelling from the back corners of my mouth and down my throat. I engage the tympanic membranes of my ears to hear roaring. I isolate different muscles of my body in a flex and release, flex and release, flex and release sequence. I listen to the teakettle screech of tinnitus. I press on my eyeballs and watch phosphenes float by. I hold a thermometer in my hand and will my temperature to change. I stare at

the reflection of-my eyelashes in the coke bottle lens of my glasses. I count my steps in my mind, stare intently at the pores in my skin and wiggle loose baby teeth with my tongue. I bang my head on my bedroom wall to experience the rhythm of sound. I bite my nails past the quick until blood wells up and I regretfully unclench my teeth and vow not to do it again. I go within again and again. So long as I can do so, I can never be bored. I was obsessed with words and sounds. I found words I liked and repeated them over and over again, enjoying the feel of them on my tongue, the way different sounds moved from throat to tongue to teeth to lips. I played with rhymes, and chanted as many- rhyming words as I could think of or invent. I got into trouble for this when bad words arose during the litany. I was told again and again not to say those words, so I practiced saying them to animals and trees instead of people. Geese don't care when you rhyme duck with fuck.

My mother sewed most of my clothes, and by the time I was three, I could read well enough to pick out clothing patterns in my own size. I read everything I could, from instructions on toilet cleaner to the westerns and Regency romance novels strewn about the house. I didn't always understand the words I was reading, but I read them, nonetheless, and I collected words like some people collect stamps, filing them away for later use.

I had no friends in elementary school. I was far too weird for most kids. My friends were nonhuman. I played. with chickens, pigs, dogs, cats, horses, goats, rabbits, and geese. I tracked down wildlife in the woods. I learned to mimic all sorts of birds. I understood how to communicate intentions with animals.

People, however, I could not figure out. I rescued snakes and frogs from kids who would hurt them, not understanding why anyone would ever kill or injure another living creature for fun. I studied other children at school and tried to understand what it was that made them OK with one another, but not with me. I wanted to join in their conversations, to know what they were talking about, but they told me to go away. I had so many things I wanted to say, but no one wanted to hear them. I was never more lonelier than when I was surrounded by people.

Words burgeoned within me, so thick I could see them. When anyone spoke, my imagination supplied closed captioning. I watched words float by like ticker tape, spoken words translated into text by my accommodating brain. Conversation was a comic book with word balloons, and when I showered and let the water pour onto my eyelids, I saw newspaper print that I couldn't quite read.

I was supersaturated with words. Those words that wanted to spray like a fire hose, to tell stories, to share the joy of sounds, the flavours of words-those words had no place to go. But then I began writing. The first story I ever wrote was when I was seven years old. I was in grade two, and my teacher did not like me. She regularly used me as a cautionary example of how not to do things, and often contrasted my colouring homework with Jennifer's. Jennifer always chose the right colours and kept within the lines. My colours extended beyond the lines. Jennifer's colouring books had bright yellow ducks in red boots carrying black umbrellas. My ducks weren't yellow. They didn't wear bright red boots. My ducks were prickly creatures made of purple and black

scribbles, and though I tried to stay inside the lines, my exuberance was too huge to be contained.

When my teacher read the first story I ever wrote, I saw something in her face she had never before directed my way. I saw admiration. "This is good," she said, and I marveled that this teacher-who disliked me so very much and who had beaten me with a leather strap-was moved by my words into admitting I was skillful at something. I learned that my words on paper were perhaps my best chance at communicating with other people.

I entered my first writing contest when I was in grade four and won it. I was published in a national magazine, and I received $ 100 and a big silver medal in a velvet case. The peanut butter stain on the velvet captures that triumphant moment when I held my prize aloft in grubby hands. I exulted in the realization that people liked what I was writing. They liked it so much they even wanted other people to read it. I began writing for myself, as well. Not every story has to be shared.

I started collecting pen pals when I was in grade five. I learned I was better at keeping human friends on paper than I was in person. I wrote letters to people all over the world, learning what they did for fun, and sharing my own thoughts and experiences. For the first time in my life, I was being included in the conversations.

I have never had a problem with generating writing, with pouring words out onto paper or computer screens. Perhaps it's because of that anxiety which always simmers within me, keeping my mind bubbling and hot, albeit too

fogged with steam to see everything clearly on occasion. When stew cooks on the stovetop, ingredients don't stay in orderly lines. Mushrooms, potatoes, and carrots tumble around one another in delicious chaos, getting their flavours all over one another. This is my mind. Messy words and ideas carom off one another within the stew pot of my skull.

I find it interesting that my hurly-burly of words, which irritate so many people, get described as lyrical once they hit the page rather than an eardrum.

Sometimes the anxiety grows too loud. The words circle within me in a cyclone and I am left sitting motionless in my chair, helpless to exorcise them. Agitation grows, though I look no different to myself in the mirror. My facial expression does not reveal the vortex inside me. There is only one thing at the forefront of my mind, and I don't want to see it anymore. How can I make it go away?

This is what it's like when executive dysfunction takes over. I dwell on only one thought, and it swirls around and around in my mind like the grey scum atop a pot of boiling potatoes. The inside of my mouth feels like I just ate cold french fries. My chest feels tight. My intrusive thought is all I can focus upon, even though there are so many things I need or want to do. If someone speaks to me, it's readily apparent I'm not being attentive.

How can I be when anxiety has left me with nothing but a worry? How can I make myself answer my emails, clean my room, meet a deadline, or remember to eat when this unwanted thought is taking up all of my attention and pushing everything else far below the surface?

In times like these, online writing groups help me. Writing sessions which supply prompts for free writing let me exorcise the demons and get to other ideas beneath the surface. Sometimes having someone else give me a word or a phrase to write about is enough to dispel the rumination and get my mind simmering merrily again. It means I can release the tension in my chest, relax the death grip of my jaw, and know I've accomplished something, in spite of it all. I am grateful for my ability to write and create. It's not a cure for my anxiety, but it is an excellent way of soothing it.

{first published in *Open Minds Quarterly*}

The New Prometheus by Nicolas Calas

His confidence in reason shaken, appalled by the contemporary tyrant's transgression of all accepted rules, the intellectual of today shows in his search for a new morality a marked preference for the Archetype — for one who wishes to save humanity by his model conduct, the development of which is set in advance. If man learnt not to cheat, then, like a knight in a game of chess he could be counted upon to act according to rules set down for the knight and not those for the bishop or the pawn. When translated into social reality these "castes" of knights and bishops become artists and saints. The archetype is the one who wins the game by achieying successfully his "mission." Thus, thanks to the representative of a "caste" the "community," the Blacks or the Whites are victorious. But in a game wherein human beings replace inanimate pawns moved by the player, it is necessary for "bishops" and "castles" to cooperate with the "knight"; this can only be done by transcending their reality — the rules they are confined to — through intuition, which is what the mystic would call grace and the psychoanalyst sublimation. If one refuses to accept either the theory based on the hypothesis of a supernatural player or the predetermined role of castes, there is still the lead of Prometheus.

It is then necessary to the mystifications of a history of patterns (the histories of Spengler and Toynbee) and to a psychology of types and of false individualism (Jung) to oppose the dynamic view of historical materialism and Freudian psychology.

The emphasis should be placed on historic tasks and not on archetype heroes; to the caste hero we oppose the individual hero; to intuitions (the grace

bestowed or the power of sublimation), fidelity to the materialist's idea. Since Prometheus has cheated the gods man has ceased to play and invents new tricks: thus Galileo moves the world which Archimedes claimed could be moved; Brancusi gives wings to stones first brought to life by Pygmalion. All are heroes for they have created, but who can say without chaining the mind that the one to be followed always is the martyr rather than the statesman, the artist rather than the warrior? Since our society has substituted the cult of the unknown soldier for the hero, liberty can only serve all who want to establish a regime of tyranny; despotism is the sour fruit of Democracy and none saw this more clearly than Plato and Demosthenes. Whosoever is against tyranny and won't accept its conquests must oppose to the Hitlers and Stalins great men in place of conquerors.

The anxiety that is the consequence of the feeling of guilt, and that has its cause in the fear of revealing a secret, can only be overcome by following a discipline of purification. The method employed varies according to the degree of civilization of the body social. From the terrific anxiety repressed in primitive society by a system of taboos man gradually succeeded in overcoming certain fears by developing the less rigid notion of sin. The individualization of sin as contrasted to its tribal fixation, so obvious in Judaism, is an achievement of the Greeks; only in a civilization where gods had been humanized as they were in the Iliad could the cause of sin come to be attributed to human instead of supernatural forces.

After the great reformers, Minos, Homer, Zarathustra and Saint Paul, Christian confession added a definitely individual and dynamic element to this process of purification, but only in our day, due to psycho-analysis and the

theory of sublimation, can we speak of the complete secularization of purification and therefore foresee the time when society will rationalize dynamic rules of conduct. Man can only hope to overcome the atavistic sense of guilt by aiming at new goals. The last great heroes of the western world, Taylor and Ford, belong to a new type, the engineers. After the depression and the loss of confidence in progress the two extremes, amoralism and mysticism, invaded all fields of activity. It is unnecessary now to refute the amoralist attitude as events, this war in particular, have made it obvious that indifference toward institutions is no more compatible with intellectual life. But it is the incompatibility between the rationalist's and the mystic's attitude toward guilt and sin that makes it impossible for all who still defend Hegel's great aphorism, "all that is real is rational and all that is rational is real", to accept a mystic solution to the problem of values.

But neither do the mystics agree among themselves upon the nature of purity. According to Aldous Huxley "a man who has learnt to love God intensely and unremittingly can safely do what he wishes, because he will never wish to do evil." This deification of man has always been considered heretical by the Christian churches and it is certainly contrary to the dogma of grace. Caught between the contradiction evil-purity it is not good deeds that the saint can oppose to temptation but only God's charity. The case against the purely contemplative type of mysticism Huxley now advocates with such zeal is forcefully exposed by Saint Augustine: "If . . . invulnerability means a state in which there is no fear to tempt us and torment us this invulnerability is to be shunned in this life if we are to live it.' But why reopen the case of oriental philosophy? None of its supporters have yet been able to refute successfully Hegel's indictment of it. As long as we cannot see in Indian philosophy

anything more “than the soul drawing itself within itself, raising itself up into liberty or thought which constitutes itself for itself’? this is “‘just as empty vanity where the subjective power of negation alone remains, everything disappears, this abstraction of intellectual substantiality only signifies an escape into what is empty and without determination, wherein everything vanishes. . . The Idea has not become objective in Indian philosophy.” The French Yogists who now contemplate in Marseilles the navel of their shrinking bellies have not succeeded in refuting Bergson’s crushing indictment of the Indian conception of morals. Industrialism, he says, by freeing western society and consequently the Christian mystic also from the oriental idea of inevitability, provides a new impetus to love and to the mystic’s love of God. It was Renan who said, as Toynbee reminds us, that detachment is not compatible with love.

But because everything that was important in Christian philosophy has been secularized by the western mind, it is necessary for rationalists to take in account the Christian heritage. From very early times man’s consciousness has been partly determined by theology — an attempt to conciliate the contradiction individual-society by substituting for society a mythical image of the universe that would satisfy our “‘oceanic feeling.” This feeling could never have been made to serve concrete reality and therefore our civilization could never have attained the high level it came to in the western world if progress and liberty had not become the two great driving forces of our society. It is only a religion of a progressive character that could elaborate in its policy of proselytism a dialectic explanation of man and his creator, cause and effect. In the development of the contradiction science religion, as we follow it from the time of Giordano Bruno, we must come to Hegel before we

are able to apply dialectics to history. I see no reason, contrarily to Toynbee, to oppose to the imperfections of human laws and to PJjato's idea of the polity, Saint Augustine's theocracy. But if historical materialism makes us turn away with impatience from Toynbee's political archaism, it is not to favor an ideological empiricism by means of which we could incorporate in our modern world this or that commandment of Confucius or Lao Tse. To Professor Hocking's defense of the value of Chinese ethics I oppose again the judgment of Hegel: "Cicero gives us in De Officiis, a book of moral teachings more comprehensive and better than all the books of Confucius .. . for the Chinese (according to Lao Tse) what is highest and the origin of things is nothing, emptiness, the altogether undetermined, the abstract universal and this is also called Tao or reason. . . But if philosophy has got no further than to such expression, it still stands in its most elementary stage. . . What is there to be found in all this learning?" Nothing, and that is why we can study oriental philosophy only from the point of view of anthropology.

Today, America in her pragmatism is behaving toward philosophy as Rome did toward non-Roman deities such as Apis or Isis. But it is not because priests have become professors and that universities replace shrines, pragmatism polytheism, that monists, christians or materialists, should submit to this intellectual farce of petting Civa and Buddha on the shoulder. And if we are against the saint it is certainly not in favor of pseudo-saints, Gandhi or Chiang Kai-shek — for the latter, too, according to Professor Hocking, is a great politico-religious reformer. But if this is the case, why not extend our sympathy to Pétain, whom his admirers call a second Jeanne d'Arc?

If loss of confidence in reason encouraged some in religious thinking, it influenced others to set up art into a cult, an idea whose origin can be traced back to the "religion" of Saint Simon and Enfantin, and whose intellectual justification is to be found more directly in the theories of Spencer and Durkheim. Division of labor, this "cancer of society" found its raison d'étre in a time when the bourgeoisie was only too willing to believe in a gradual and unhampered progress. Protestantism — and progress was particularly obvious in Protestant countries, England and Germany — had taught man to have absolute faith in work. Capitalism had made the ruling class feel the need to develop such an ideology because it had separated work from the instruments of labor. In a period of extreme division of labor, marked by a separation between labor and speculative thought, art becomes for the artist what money was for the workman, a means of purification, and a supreme goal. Since the coming of age of the masses aa the Industrial and French Revolution — and the increase of their educational requirements, the status of the artist and poet has changed from that of courtier to the aristrocratic republics of Athens or Florence to one of demagogue or flatterer of the masses. The purpose of the theory of art for art's sake was to preserve art from the new peril. At this historical conjunction art had for the first time to function in a society which was not dominated by an aristocracy but by a class — the bourgeoisie — which believed more in progress than in tradition, an idea which is expressed in the admiration for the self-made man. The theory of division of labor led art to put an emphasis on experimentation, following the example of science that had come to be identified with progress. As for success, the artist was to obtain it under the form of idolisation which the mass dissemination of knowledge through the press and the radio had made possible. Even the contradiction between sacred and profane, which

anthropologists were discovering as a fundamental division in primitive society, seemed to justify the bourgeois point of view; it was so easy to identify in contemporary society science and art with a sacred function! But when, under the pressure of class antagonisms, the mystification of the division of labor ceased to have an effect, then the artists who had already habituated themselves to consider their functions as sacred display all the weakness of caste: their sole preoccupation is to save their skins. Art for art's sake becomes art for the artist's sake; the means become an end and the personal is dehumanized; to save artists now means to save the tools that write books or paint pictures. Vanguard reviews of art and poetry compete in their common effort to justify the artist's escapism. At least André Breton is aware that if the artist should avoid a spiritual collapse it is not enough to suggest that he should cease writing for the duration or avoid compromises, he appeals to the "'vanguard" to uphold the prerogative of an eternal minority whose task should be to challenge all beliefs in the name of doubt. This fetishism of doubt can only provide a basis for the substitution of ideological competition by personal rivalry. After the last war the de facto substitution of art for art's sake had, from the point of view of the development of civilization, a profound raison d'étre; in the interbellum period the balance between the contradictory social forces was of such a nature that intermediary — petty bourgeois — activity could express itself freely. If we keep in mind that- viewed from the angle of group psychology the function of art is to play the role of a safety valve for emotions, which if not canalised only cause an increase of anxiety, we understand why society became so art conscious in the twenties and thirties and also why art cannot function properly today. When anxiety —the suspense in a period of tension — is replaced by terror in the face of a calamity — there is no social usage for safety valves. Now it is not only useless but it

becomes reactionary to rationalize anxiety and turn it into doubt as does Breton —to say nothing of his suggestion to create a new myth. To spread the gospel of doubt in days of agony is like shipping spices to the starving populations of Europe. Doubt may have been progressive in the days when Abelard revolted against the Schoolmasters. But it is only by distorting the political reality of our time that we could speak of the fundamental moral crisis in terms of the contradiction orthodoxy-heresy or temptation-purity. In our effort to overcome anxiety we must try simultaneously to change both the subjective and objective factor of the body social; both the political reality of the world and our attitude toward this reality. To return to the faith of defunct societies and their dogmatism as. the mystics suggest; to the creation of the myths which we are convoked to assist by the hierophants of new mysteries; to the Civitatis Dei of Saint Augustine and to Breton's dialogues written in the backyard of the Republic and to his banquets without dialogues; to fetishes, it is time to oppose new battle cries.

But how are we to know what are the right battle cries unless we have decided what choice to make and what decisions to reach on the major issues at stake? There is something faulty in a diagnosis that does not indicate the nature of the therapy. However penetrating Arthur Koestler's The Yogi and the Commissar' I doubt that he will be able to give us a satisfactory solution to the problem of conduct. I believe that an analysis based on an "either-or" psychology leads us nowhere. By reducing Jung's archetypes to Kantian antinomies Koestler's pair of opposites in the social spec: trum — the Yogi crouching in the "warmthless but all penetrating" ultra-violet rays and at the other end, obviously the infra-red, the Commissar, the man who "helieves in Change from Without" — are reducible to a common denominator the way

the alternate rhythm of day and night are reducible to differences in degree of light. The spectrum no more than the navel can serve; by gazing at either we are fixed to an arbitrary center. Not the navel or its substitutes but the individual is the common denominator in all rhythms of conduct. How misleading Koestler's premises are becomes evident when he accuses Prometheus in the nineteenth century of turning into a shallow optimist full of arrogant self-assurance. If ever Prometheus becomes too enfeebled to pursue his heroic deeds we shall steal the fire from him! It is not by an analysis of the spectrum that we shall discover Prometheus — he is revealed in eruptions of volcanic force.

No final judgment can be passed on actions whose justification lies in their goal, because, we can never know what will be the effects of objective hazard. On the other hand we know since Freud that for all practical purposes we must give up hope of discovering what are in the last instance the motives of our actions, we cannot judge human conduct according to a theory of intentions. Toynbee's interpretation of how Gregory the Great and the Emperor Heraclius became important heroes in spite of themselves can lead, if correctly applied, to the formulation of a post-Euclidian conception of morality, which will be a morality of relations — of relations to the economic factor. According to this theory of "le heros malgré lui"? no analysis of intentions, no examination of immediate results can guarantee what will be the verdict of history. This theory is a materialist counterpart of Calvin's dogma of predestination and, in a wider sense, both a reply to Protestant and Catholic moralities and to the controversy between Jesuits and Jansenists.

None has more clearly described the nature of the two factors of morality, free will and necessity, than Blaise Pascal. But the principles of a new morality will not be founded on a reinterpretation of a Jansenist theory of intention; they shall be deducted from an application of the theory of probability to the field of morals. It is significant that we owe the basis of the calculus of probability to a study of the game of dice, made by Pascal. Pascal's interest in hazard was predetermined by the growing belief of the capitalists in the advantages of speculation. Less than a century later the Western society went through a series of crises due to oyerconfidence in speculation. The capitalist, a man who has faith in his destiny, is an individualist, intuitively, as Kant would say, he understands that the subjective counterpart to chance or probability, in dice or speculation, is risk, risk and not temptation. The humanist Machiavelli had already drawn our attention to the importance of interest and the Counter Reformation tried to apply the theory of interest to the purposes of the Catholic church; why shouldn't therefore the most powerful individualists of that time apply this theory to their god, money? But in the days of the growth and power of capitalism risk never became a virtue because on the

whole the individual had too much faith in capital and in its stability not to prefer initiative and investment to risk and speculation. After Pascal, risk and chance followed two opposing directions, that of adventures in finance and politics and that of work and science.

From the time accident insurances were given to workers the notion of risk became a counterpart to death and was therefore associated with life. Risk is the latest form of development of purification. The theory of risk has also been

applied in some advanced legislations since the last war — and more particularly in social democratic Austria — to unmarried mothers. According to the Austrian legislator and in contradistinction to the French (circa 1910) it was no longer necessary to prove paternity for the man who presumably had had sexual relations with the mother at the time of conception to be responsible for the child because it was assumed that he had taken the risk of conceiving it.

In the development of its own contradictions capitalism had had three important moral implications. First, since Proudhon and Marx the workmen came to realize that salary does not correspond to the value of work, which means that it is not through work that man can become rich. Secondly, economic crises inherent in the capitalist system have seriously shaken the confidence of both the working class and the middle class in such capitalist dictums as “time is money.” Their fear of inflation and unemployment generates an obsession: the idea of earning money without work — outside time so to speak. Thirdly, as opposed to investment and to work, risk has been ennobled by science, and marxism by tracing the evolution of capitalism to its inevitable fate made it clear that work could never automatically lead to the emancipation of the working class; it is therefore necessary to associate work with political activity but this conclusion is in direct contradiction to bourgeois morality which has idealized work. According to bourgeois ideology developed by the Reformation, for work to become a virtue it must remain pure, that is to say isolated from risk. Risk was attributed either to the new God — the God of Calvin — who by casting salvation on some and damnation upon others stands for fortune and not for justice, or to God’s image upon earth, the capitalist. For God, the salvation of men, and for the

capitalist, the accumulation of riches has become an enterprise in which the faithful are doomed to work if they want to earn their daily bread and enter paradise. But if instead of submitting to fate man liberates himself from the capitalists he automatically dissociates himself from the Protestant and bourgeois conception of work and is therefore at last free to associate work with risk. By means of a determinist interpretation of history it is not only possible to associate work with politics but also work with enterprise. To the mechanistic salary conception of work we should oppose the dynamic conception of work, as an -enterprise (council of workers). More and more dissatisfied with the conditions of work man is becoming aware of the value of risk; he sees it associated with pure science, with political history, with life in birth accidents. This direct association encourages us to correlate responsibility with all forms of creative work. Our integrity — the atheist's purity —is rooted in fidelity to the Idea, and because our morality is one of creation and not of salvation, to the mystic's belief in purification through sacrifice and to the artist's faith in purification through sublimation (theory of art for art's sake), or through rituals (art for the artist's sake), we oppose risk and responsibility. Risk is the counterpart of discovery — the materialist's initiation. All attempts to revive sacred rites by means of a concoction of anthropological theories (sacralization) and psychological theories (sublimation) serve the sole purpose of rationalizing the fear of those unfortunate intellectuals who hope to avoid the grave implications of reality by castrating the Idea with the scissors of Doubt. Instead of the Church — the laboratory and chants modulated by the passions of the masses! All risks have to be taken if the exceptional is to be captured. The contents of the tragedy of existence can no more be distinguished from action. The modern poet is no Hamlet; not the statesman alone, the poet also faces the new reality and

interprets it in dynamic terms; he struggles for the rehabilitation of the hero; he must become a hero, become one and idolize none. We are not for “heroic literature” either in its epic robes or in the garb of a domestic cult, known under the name of novel. Of all types of literature the most valuable is the mantic, and as in the age of science divination becomes discovery, so the mantic eye of the poet plunges into dreams and traces the course of alienated sensations with the audacity and precision of Rimbaud. But as liberty isolated from the idea of political progress can not benefit the masses — the rule of Pericles and the theories of Plato and Aristotle are a sad proof of this — so mantic poetry must again become prophetic and insight must now follow “the science of perspectives” for art not to remain a form of speech used by a caste of Pharisees to deliver their utterances in the Temple. But against the leaders betraying the ideas they once battled for there is no need to provoke the wrath of the people which would chase the Pharisees out of the Temple, for they have fled before committing sacrilege. In their new role, salesmen of ideas no wider than the hem of a petticoat, they are only capable of arousing mirth.

Confidence in creators can be regained only through common action pursued in the name of an Idea. And “ideas do not fall from the sky”; they develop in the clash of conflicting economic interests. We must not forget that the actual battles are the outcome of crushing defeats —the defeat of the English working class in the General Strike; the repression against the Chinese workers conducted by the Kuo Min Tang; the coup d’état of Dolfuss, the Moscow purges, Hitler’s victory; the failure of the Popular Front in Spain and France. Nobody knows where the future battles of Marathon will be fought for the Persians are now everywhere and what we mean by Greece — the animus without which no further progress can be accomplished — is

momentarily confined to very small groups; but they, too, are to be found everywhere. It is only those who are not guided by the light of historical materialism who will let themselves be overcome by sickness at the mere sight of the rough sea of our civilizations. Philosophers they call themselves and sit under a tree near the desert when they should cover their impudent faces with leaves. Poets are not seized by vertigo, they must be inspired by him — Aeschylus. The poet warrior is Promethean.

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It's Easy to Criticize by Kurt Seligmann

There is no painting without method. We know that in the most depersonalized abstract forms as well as in the spongy, smoked, rubbed surfaces a method is concealed having its origin in experience. The interpretation of the accidental and its coordination are of importance to any painter: to describe signifies to interpret. The interpretation and its fusion with the hieroglyph-skeleton of the painting excludes by no means the use of chance elements.

; I think that the question is of small importance, if the pattern guiding the coordination is formed before the painter starts his work, or during its execution. The plan may modify itself during the process of execution. But the plan exists nevertheless a priori, It is born in the vision preceding the art work and its modification during the working process is not only admissible but desirable. The will to form, that primordial force, will modify, transform and twist the image, until it is in full accord with the material requirements of the canvas, until it forms that unity which we impose upon the exterior world.

If I wish to criticize methods and procedures, I criticize first of all myself and I do it in order to clarify my ideas and to give them a propensity.

The plastic means used in some modern works of painting seem to be hostile to any deep and clear space description. Their use apparently excludes that new space the premonition of which enhances our thought and of which we know that it will not be a mirage of atmosphere, nor a simple trompe-l'oeil, nor a linear construction in a renaissance sense. I do not wish to analyze the

origin of this need for space representation. However, the early Chirico shows us that space can be more than the illusion of a third dimension, that it can be a medium of affective expression just as any plastic medium can.

Today there is a profound contradiction between our need for space and the plastic media we restrict ourselves to, media which seem to oppose themselves obstinately to any new space representation.

Space has to be conceived, to be built; its building excludes haphazardness in its foundations. Conception canot reconcile itself with chance.

If I wish to introduce space into my work I must give a minor importance to the chance element. Because the means by which we provoke the accidental do not know another space than a limited trompe-l'oeil.

We can not call creation of space the way we describe a conventional depth in our paintings when we cut out from the profusion of decalcomaniac elements as much as we need for a sky, lake, horizon, or desert. Delimitation is not space. Since cubism we try to pulverize the magic diamond. The enchanted world in which Picasso's three musicians live is only a few feet deep. The sound of their instruments is a praise of claustration, of happiness within the four studio walls. In our epoch of air attacks these four walls may crumble, they do not secure meditation and protection anymore from a world of indifference ...

Our new space seems to exclude chance from invading the canvas before the process of painting. We should stress more the a priori element, the vision

anticipating the work. This vision may form itself automatically as in the case of Helen Smith who copied forms presented as realities by her inspired imagination.

The use of the method provoking chance- forms to be interpreted automatically contains a danger, although it liberates psychic forces in need of expression. Liberating on the one hand it impedes on the other, because it leads the creative forces _always through the ‘same canals, thus curbing the immense flight of imagination. The vision anticipating the work is consigned to an inferior rank, or even completely excluded. A conciliation between the two principles seems difficult and the fusion of the two elements painful. The discrepancy between the forms obtained by accident and those conceived a priori is manifest and gives the impression of superimposition.

The element a priori is not for the *Gestaltist* something exterior or impersonal, on the contrary it resides in the deepest strata of personality and transmutes itself with the experiences of the individual. It is constant.

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Another Bright Messenger by Henry Miller

Behind the phenomenal world with its featherweight armadas, sleigh-bells, searchlights and mediumistic trappings, lie the arcane realms where creation never ceases. Here the poet builds his laboratory, blind as a mole but moving with instinctive certitude. If his symbols are shoddy they are none the less authentic: they correspond to an out-worn reality.

In the figures and landscapes employed by Max Ernst we see the vestigial traces of a suprasensual world which, like our own sorry world, appears to be on the brink of collapse. The permutations and transmutations taking place in the physical world have their corresponding echoes in the invisible worlds. Sensitive souls pick up the echoes first, thus bringing upon themselves ridicule and persecution. It is difficult for those who have their being in the lower registers to believe that familiar landscapes may within the space of a short lifetime come to resemble mangy mattresses strewn with dismembered human limbs, gory heads like bowling balls and other dispersed relics of the civilized life. It is even harder for them to visualize the possibility of millionaires' sons roaming naked through the woods, plumed like birds, and searching for fodder on all fours — say in Patagonia, or Formosa. So long as we are merely neurotic, nightmares provide interesting material for study.

The chimaerae, the unearthly vegetation, the symbolic episodes, the haunting passages which lead us in the twinkling of an eye from the fabulous to the invisible and frightening realities, in the pictures which Max Ernst has been giving us for the last twenty years, are not dream images any more than they are accidents. They are the product of an inventive mind endeavoring to

translate in worldly language experiences which belong to another dimension. If they are horror-laden sometimes it is not in the familiar nightmarish sense which we are accustomed to ascribe to the functional processes of the night mind. They are compact with wonder and mystery, awesomely real. A glow emanates from them which arises neither from the day world nor the night world. It is the effulgence in which all living substance is bathed and is traceable to the central source of power and light. Within the rock crystal it blazes as fiercely as in the solar bodies. Death does not extinguish it; death strikes only among the ephemeral forms.

The spiritual argonaut scoffs at wings, just as he is contemptuous of inventions which increase the trajectory of a Big Bertha a few more miles. Blind-folded he can pick his way amidst the galaxies with an accuracy denied the man whose eyes are glued to the telescope. Imagination does not gallop or fly — it overleaps, it turns somersaults, it discovers new dimensions. It seeks exits, not extensions and enlargements. It does not work — it plays. To the imaginative mind a "better" life is unthinkable. The varieties of life do not arrange themselves in moral, social or political hierarchies; these orders pertain to the flat, two-dimensional plane. The poet — and Max Ernst is definitely one of the few poets among the painters of our time — strives to bridge the vertical orders, using the suprasensual ladders, rainbows, linguistics and boreal lighting effects which are also the property of the seer and the mystic.

In this effort to span and transliterate it is inevitable that he should traverse the cloudy realm of "fear and trembling" which hangs like a shroud about the active, earnest participants here below. His bewildering transmogrifications,

now so familiar to us, take on a new character as we progress from station to station along the way of vital destruction. As our world hangs in shreds, as the beards of our phantom monsters become weirdly affixed to the chins of our angelic hosts, as the bodies of beasts and men pile up in inextricable confusion, embracing one another in death, and in turn ravished by the machine, the fantastic jumble of poetic invention begins to appear more and more like order and logic, like the clean-cut preview on a small scale of a world-wide drama whose outlines are still obscure to us. How can a fugitive bird make known to the greedy omelette manufacturers the mysterious content of those eggs which are not rotten?

I think of Max Ernst as I first glimpsed him — a bright messenger from the other world seated on the terrace of a French café with a potation of powdered gold within grasp of his avid fingers. Watching his eager lips I strove to read the bird and feather language which he employed like an adept. I always wondered what he was talking about, yet mever dared approach him. His skin seemed to glisten with the dewy agglomerations collected in swift flight. I felt that he was an Intelligence which had borrowed form and substance in deference to the requirements of sidereal politeness. In his awkward moments he seemed like a giant blimp navigating rather helplessly amidst tables, chairs, bottles and bodies of more or less human character. I felt that he was born *dépaysé*, a fugitive bird in human guise, always straining to soar “beyond the exterior world with its wolf dens, cemeteries and lightning conductors.” I hoped forlornly to hear him say: “I am wasting time here.”

Surrealist and Dada Poetry

The Pomegranate by Eavan Boland

The only legend I have ever loved is
the story of a daughter lost in hell.
And found and rescued there.
Love and blackmail are the gist of it.
Ceres and Persephone the names.
And the best thing about the legend is
I can enter it anywhere. And have.
As a child in exile in
a city of fogs and strange consonants,
I read it first and at first I was
an exiled child in the crackling dusk of
the underworld, the stars blighted. Later
I walked out in a summer twilight
searching for my daughter at bed-time.
When she came running I was ready
to make any bargain to keep her.
I carried her back past white beams
and wasps and honey-scented buddleias.
But I was Ceres then and I knew
winter was in store for every leaf
on every tree on that road.
Was inescapable for each one we passed. And for me.

It is winter
and the stars are hidden

.I climb the stairs and stand where I can see
my child asleep beside her teen magazines,
her can of Coke, her plate of uncut fruit.
The pomegranate! How did I forget it?
She could have come home and been safe
and ended the story and all
our heart-broken searching but she reached
out a hand and plucked a pomegranate.
She put out her hand and pulled down
the French sound for apple and
the noise of stone and the proof
that even in the place of death,
at the heart of legend, in the midst
of rocks full of unshed tears
ready to be diamonds by the time
the story was told, a child can be
hungry. I could warn her. There is still a chance.
The rain is cold. The road is flint-coloured.
The suburb has cars and cable television.
The veiled stars are above ground.
It is another world. But what else
can a mother give her daughter but such
beautiful rifts in time?
If I defer the grief I will diminish the gift.
The legend will be hers as well as mine.
She will enter it. As I have.
She will wake up. She will hold

the papery flushed skin in her hand.
And to her lips. I will say nothing.

I am a Pomegranate by Amber S.

I am a pomegranate.
cut me open.
break my outer skin.

inside of me is my fruit.
the meat of me.
hidden.

dig your fingers into me,
pulling me apart.
ripping me to pieces.

I do not want to be
in your mouth.
feel the heat of your breath.

chew me up.
spit me out.
and leave me empty.

Pictorial: Don't Move Now … Stay Perfectly Still!

How to Cut a Pomegranate by Imtiaz Dharker

Never,' said my father,
'Never cut a pomegranate
through the heart. It will weep blood.
Treat it delicately, with respect.

Just slit the upper skin across four quarters.
This is a magic fruit,
so when you split it open, be prepared
for the jewels of the world to tumble out,
more precious than garnets,
more lustrous than rubies,
lit as if from inside.
Each jewel contains a living seed.
Separate one crystal
.Hold it up to catch the light.
Inside is a whole universe.
No common jewel can give you this.'

Afterwards, I tried to make necklaces
of pomegranate seeds.
The juice spurted out, bright crimson,
and stained my fingers, then my mouth.

I didn't mind. The juice tasted of gardens
I had never seen, voluptuous

with myrtle, lemon, jasmine,
and alive with parrots' wings.

The pomegranate reminded me
that somewhere I had another home.

In No Way So Grand by Patrick Bruskiewich

Nature can be described
in many ways,
but in no way so grand
as through the use of
mathematics.

And when we accept that
we may also eventually accept
that we are not more important
in the grand scheme of the universe
than a bird that flies overhead
or any other living creature
for that matter,
even an ant crawling at our feet.

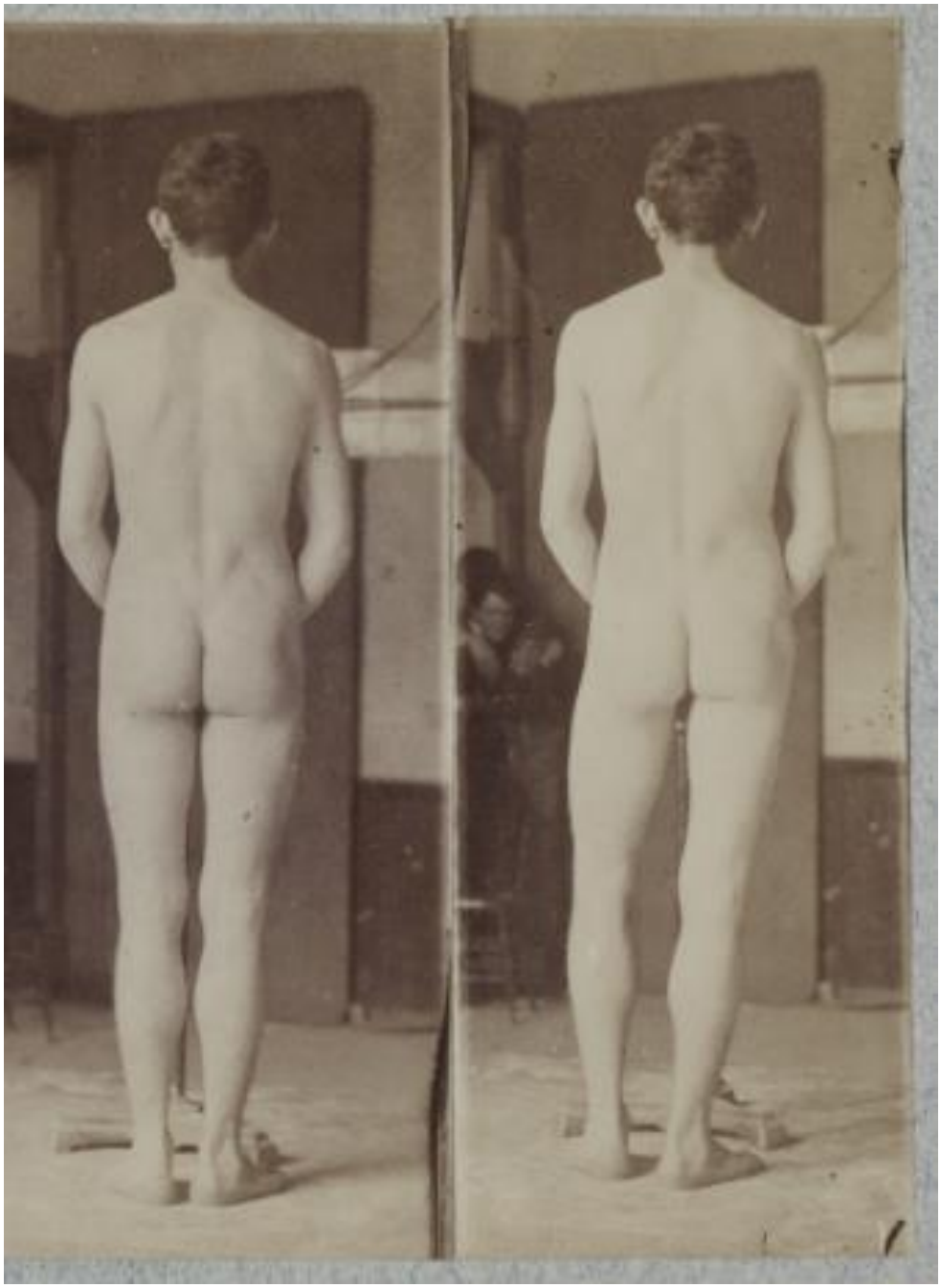
If we accept this
then perhaps we can appreciate
what it means to think and
to have worthy ideas.

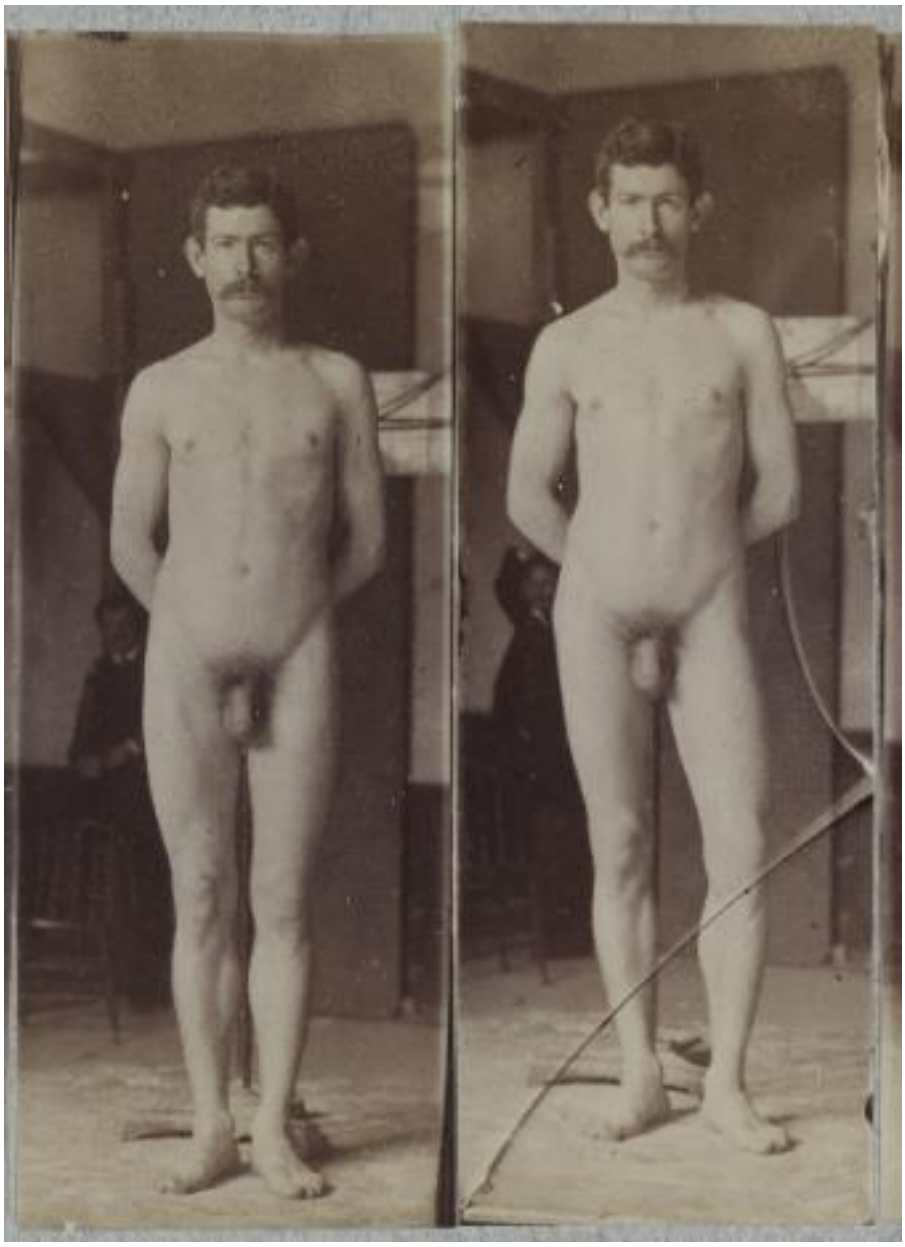
Pictorial: Pomegranates by Minna Keene

Circa 1910

Photography

The Male Nude from 1896

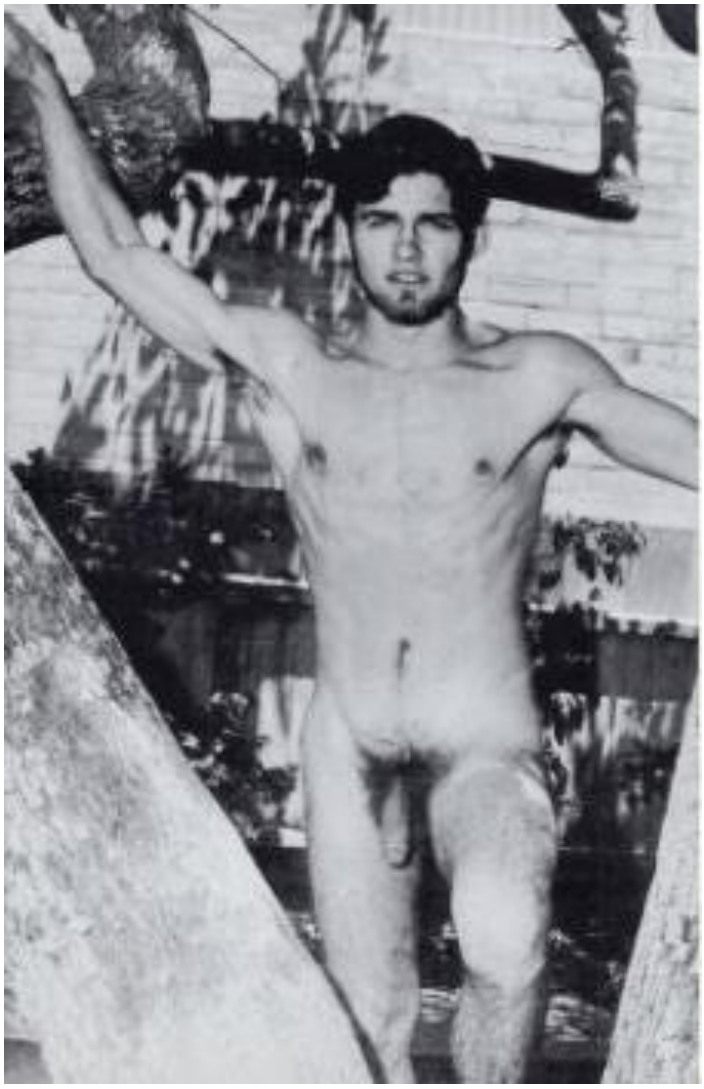




Pictorial: Just a Peek … Mind You

A Peak at the Boy Next Door by Amelia B …

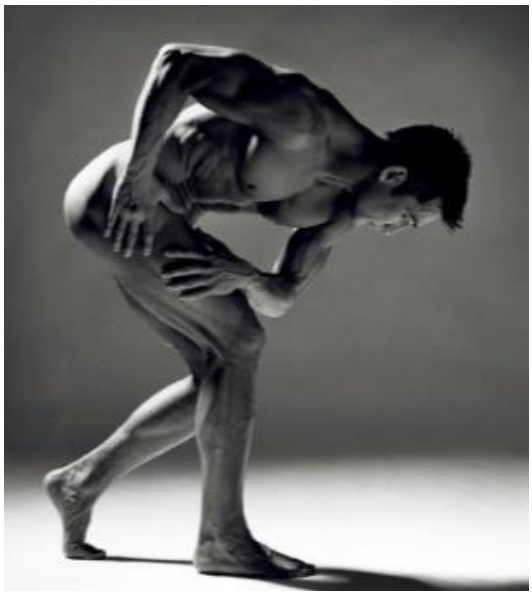
When I was growing up there were boys next door. One lived on one side and the other lived on the other side of where I grew up. They sometimes sunned themselves. I asked if I could take a Polaroid of them and they said yes!



A few weeks ago I found these Polaroid pictures in a box of my old things. I don’t know if I should tell you how old I was when I took these pictures.

They didn’t seem to mind having their pictures taken by me. A few years later I took up figurative photography as a past time and decided to focus on the male nude.

Here are some of my more recent pictorials.



It is funny but later in life I steered away from photographing ‘eggplants.’

The male is more than just his eggplant …

The Surreal

The Murderer of Dusseldorf by Edmund Pearson

PETER KÜRTEN, THE WERE-WOLF

Peter Kürten may have been the worst man who ever lived. He has claims to that eminence. But his career had one beneficial effect. It did much to scatter that great cloud of fog and fluff which gathers around the study of crime and criminals. In the final disposal of his case, the law returned to realism.

Soon after the War (and, some would contend, because of the War) a peculiar type of murderer arose to notoriety in Germany. Nations whose murderers favor poison as a method, assert their moral superiority over the Germans for that reason. And, we are told by an experienced newspaper correspondent in

Berlin, Margaret Seaton Wagner, that the Germans return the compliment, and affect surprise and disdain for the poisoners of England and Italy.

At all events, Herr Denke of Münsterberg, who killed about thirty men and women— and pickled them—used weapons which could hardly be called subtle. A pickaxe was one of them. Herr Grossmann of Berlin, who disposed of an indefinite number of women ("scores" of them), carried on "an_ illicit trade in meat". And Herr Haarmann of Hanover placed in the river, near his house, enough bones to make twenty-six complete skeletons of young men.

The careers of these men explain why, in medieval times, folk concocted the myth of the *were-wolf*. Our ancestors were as much puzzled as we are to account for cases of frightful inhumanity, and so came to believe in men—and women—who at night could put off human and assume bestial form. After committing their shocking crimes, they resumed, at daybreak, their human bodies.

That the fourth of these great modern were-wolves was ravaging the country-side, dawned upon the people of Düsseldorf with the discovery of the body of a murdered child named Rose Ohliger. This was in February, 1929. For more than a year, thereafter, murders and murderous attacks terrified Düsseldorf and astonished Europe. Women, walking in parks and lonely places, were stabbed or strangled or killed with blows of a hammer. These assaults were varied in their methods and details; they included children, young girls, middle-aged women, and, in at least two instances, men; and they seemed so to differ in purpose that the police were confused. In their scientific desire to fit the murderer into this or that class—the "Ripper", or the "sex-maniac", or

something else—the detectives could not believe that one man was at work, but thought they had to find four criminals of different types.

Two little girls would be killed and a woman would be murderously assaulted on the same day. Girls would be stabbed or half strangled, and left to recover and tell the detectives of a polite man who had offered to escort them through some lonely place, and had then suddenly attacked them with a knife, a pair of scissors, or a noose. Chief Inspector Gennat, from Berlin, was baffled fully as much as was Edgar Wallace, who came and lived in Düsseldorf, to be near the scene. Some of the police, who completely "went Hollywood", dressed up a lay-figure in the clothes of one of the victims, and carried it to cabarets and dance-halls, in the wild notion that its appearance might cause the murderer to confess!

During fifteen months, 9,000 people were questioned in Düsseldorf alone, and, in the country at large, more than 900,000 accusations were investigated. The murders went steadily on. Four hundred graphologists, astrologers and other experts in hanky-panky, offered their services. The police were in receipt of letters from the murderer, telling where the body of a victim would be found.

The world was horrified, forty-five years ago, by the four or five crimes of Jack the Ripper in London. But after the "Düsseldorf vampire" had been at work for a year, and his murderous attacks numbered over thirty, with the police still at sea, there was natural indignation. The scientific methods of the detection of crime in Germany have often been held up—and justly—for the admiration of the world, but in this instance, police in London, Paris and New

York must have grimly observed that the German detectives are not super-human.

Someone (was it De Quincey?) said that society is at the mercy of a murderer who is remorseless, who takes no accomplices and who keeps his head. For a long time the Düsseldorfer observed these rules. While the police were compiling their card-indexes, or trotting around the night-clubs with their mannikin, the murderer was living at home with his wife, more or less prosaically and normally, although sometimes putting a strain upon her good-nature, by rousing her at 3 A.M., to take her for a walk in the park, to hear the birds sing.

"He knew," she said, "every bird by name and could tell them by their song."

At last, this nature-lover made a wee bit of a slip. He did not completely murder Maria Budlick. This girl, a stranger in town, was picked up at the station by a gentleman, who, with all the solicitude of an agent of the Travellers' Aid Society, offered to conduct her to a girls' hotel. The way, however, seemed to lead through a lonely park, which Fraulein Büdlick sagely refused to enter. While they were arguing about it, another gentleman approached (a little were-wolf music, here, please) and rebuked the first man for seeking to lead an innocent astray. With lofty words he bade the marauder begone, and_ the marauder (whose name is unknown to history) retired, like the craven that he was.

The new gentleman, whose manner was still more respectable, gracious and kindly, was now accepted as Maria's escort. First, he suggested that she might

care to come to his apartment for rest and refreshment, since she was obviously tired, hungry, and without any place to stay for the night. She promptly accepted, and went with him to the fourth floor of a good-looking apartment house. His apartment was one room only, but his entertainment of the girl took the perfectly moral form of a ham sandwich and a glass of milk.

Then, at about eleven o'clock, they set out again for the girls' hotel. This time the path led to an alarming region—through thick woods, and to a place—had she known it— called the Wolf's Glen. His attentions now advanced from the harmless sandwich-and milk stage, to enforced kisses and then to chokings. She fought him off, and during the struggle, he inquired:

"Do you remember where I live? You might be in want, and I could help you."

Maria Büdlick hastily replied that she did not remember. This was nearly, but not quite true. Her assailant let her go, with no further molestation, and two days later she was able, not without trouble, to find the street, and point out the apartment of the polite choker. The police arrested Peter Kürten.

He was forty-seven years old, but, owing to his skill with powder-puff and rouge, was able to make most women take him for less than thirty. He and his wife were casual labourers, the one who happened to be employed cheerfully supporting the other. Frau Kürten knew nothing of her husband's murderous activities, and was sadly resigned, not only to his weakness for early morning bird-walks, but to his constant philanderings with other women.

Of Kürten's forty-seven years, twenty-one had been spent in prison. He had been sentenced seventeen times for theft, fraud and "brutality". One term, of seven years, from 1913-1921, covered all the period of the War, and shakes Mr. Bolitho's theory that these "mass-murderers" are the result of war or militarism. Far from being a soldier, Kurten had avoided military service by desertion. He had committed arson twenty-two times; and made twenty-three attempts to strangle people, in addition to stabbings, bludgeonings, hammerings and drownings. When he went, for the last time, on trial, he was convicted for nine completed and seven attempted murders. He was blood-thirsty—not in the figurative but in the literal sense. If he was given to cannibalism, the fact does not appear.

Those to whom Kürten's career is unknown will say that the story is incredible, and that if one quarter of it were true, then Kürten was a roaring madman. On the contrary, his memory of his crimes was correct to the minutest detail, and his confessions of all these events were corroborated beyond the shadow of doubt.

He was not tried until nearly a year after his arrest, so the demand of the modern criminologist that such men be studied was fulfilled to the heart's desire. The leading experts of a nation distinguished for the learning of its alienists and psychiatrists kept him under observation for months. They found him sane and responsible.

His crimes, except for one, were all pre-meditated. He did not act under that "uncontrollable impulse" dear to some criminal lawyers and their assistant alienists. Professor Karl Berg testified that Kürten "was master of his own

resolutions". He was "all attention at the moment of carrying out the deeds, ready to take cover at the moment of danger". He showed a high degree of intelligence, while the facial characteristics of the criminal (Lombroso's "stigmata") were absent. He acted—in public—like anybody else.

German criminal law is careful and merciful. A strong element of public opinion disapproves of capital punishment. But after all the psychiatrists had finished, after every Gerichtsmedizinalrat had had his innings, they were reduced to the expedient of acting with ordinary common sense.

They brought out an ancient guillotine and took off his head.

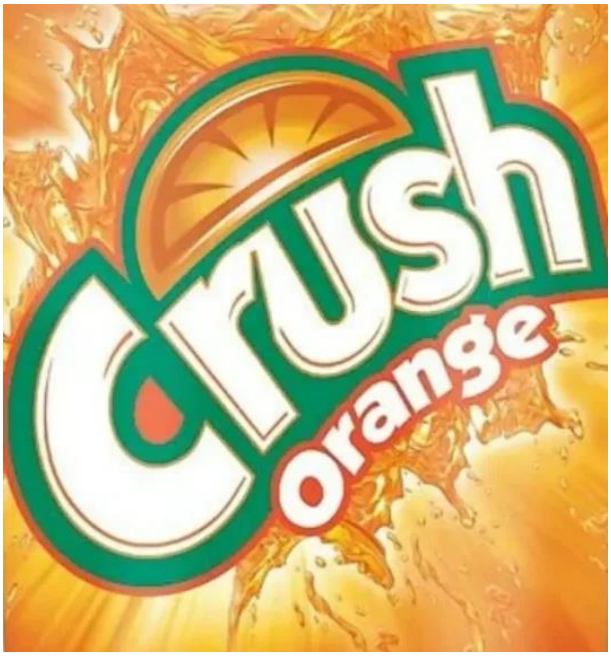
{First published in *Vanity Fair*, 1932}

Pictorial: What a Monster!

Popcorn

{Popcorn: Popular + Corny …}

Got to Love that Orange Crush!



It all started out as a lark. It ended as Ultimate Fun!

I am in my tenth grade at a school in California. One day after school on the last day of school before the Christmas holidays I was thirsty. I went to one of the dozen vending machines outside our cafeteria and put a dollars worth of quarters into a vending machine.

I selected an Orange Crush … but instead what I got was Coke.

Boy was I miffed. I hate Coke. Anything but a Coke! I didn't get what was in the slot for the code I had inputted into the vending machine. I had pressed B2 … but got a pop from C2 … the row beneath. Was Big Red watching me or something?

There was a complaint number on the front of the vending machine and so I called it on my cellphone … a toll free number … and told them what had happened. The person on the complaint line said for me to put the Coke on top of the vending machine. When I did this suddenly the machine disgorged my Orange Crush.

Then the line went dead. I stared at the machine and realized that a Wifi antenna stuck out the top. This meant that the machine was linked up in real-time to a central vending node on the internet.

I enjoyed hacking and so I took my precious Orange Crush and walked back into our school library and sat down in front of the library computers. I had already figured out the admin password for this computer and so I serendipitously logged on as admin then searched for an outlier the IP address to a node in our school. The vending machines stuck out like sore thumbs. It took me perhaps five minutes to not only sort out which machine I had used but to backtrack to the computer of the complaints person who had fixed my problem.

A handful of minutes after that I had hacked into their computer. From my vantage point I could see the whole layout of their system. They had 3,200 vending machines just in North California.

As I finished by Orange Crush the thought came to my head. I was still thirsty. Their graphical user interface menu was very user friendly so I decided to do

a little experiment. I selected an Orange Crush from the machine I had just used and dispensed it … then I dashed down the hall to the cafeteria.

There it was … another cold Orange Crush waiting to assuage my thirst. I approached the vending machine stealthily to retrieve my bounty. Then crawled a meter or so over from the machine before I stood up. Lucky for me there was no one in the hallways for they probably would think I had lost my marbles. Instead … I had stumbled onto a gold mine.

When I got back to the library I carefully covered over my digital tracks and then logged out of the vending machine server. Then I covered my digital tracks as admin and logged off the library computer.

I left the library as proud as a father of a new born. What I had noticed is that there was a batch command on the vending machine server. This got me thinking … what could I batch?

When you are in grade ten you know you are a minor and well … when it comes to the law, a minor is a minor is a minor. One of my classmate had run into a bit of trouble when he was caught buying beer at a corner store. He got a slap on the wrist. From what he told me, I knew that whatever I do, provided it has not harmed anyone, would be expunged from my record when I come of age.

The following day I was at the community library. Yes, you guessed it, I had hacked into Admin there as well, and found the vending machines at the community library was on the same vending network.

Nothing tastes better than an Orange Crush, particularly if you can get it for free.

I put in a batch order for the removal of Coke from the vending machines at the community library and see their replacement with Orange Crush. When I came back the following day I say that my order had been fulfilled. I treated myself with two more OC's on the house!

Then the thought crossed my mind. Why stop there? I wrote a script to order the removal of Coke from the vending machines in my entire county and their replacement with Orange Crush. That was a few dozen machines.

Then I sat back a few days to see if anyone noticed what I had done. When I logged back on two days later on December 23rd from a computer at an internet café things seemed fine. This emboldened me to go the whole ten yards.

That afternoon I wrote a large script batch file for all of the 3,200 vending machines. The first part was to order the removal of Coke from all 3,200 vending machines and their replacement with Orange Crush.

Can you guess what the second script was for? This was the Ultimate Fun!

On Christmas Day thousands of Californians got an Orange Crush for free … including me! I even programmed the machine to play Christmas music as it dispensed the drinks.

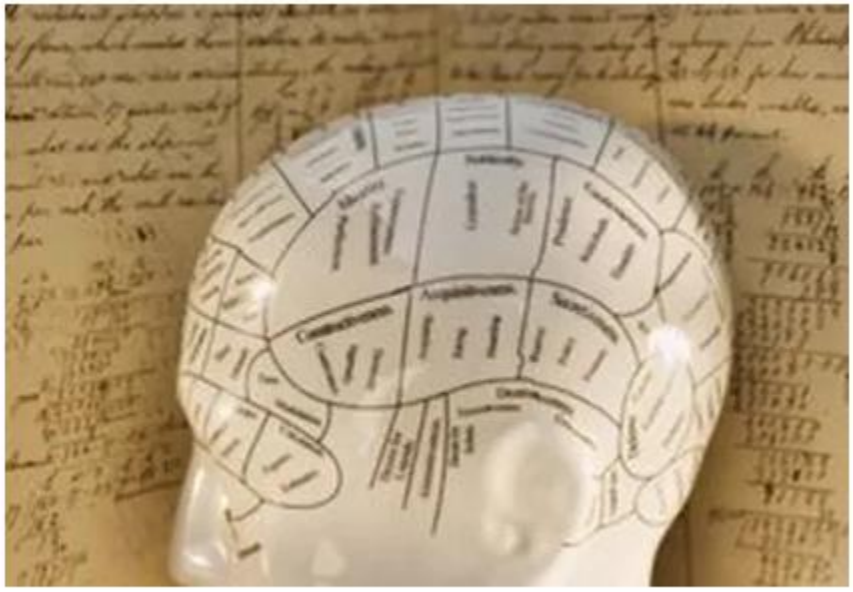
A few days after Christmas that year there was a news story about how the Orange Crush Affair was a promotional caper …

I guess the vendors were too ashamed to admit they had been hacked … and by a sixteen year old.

Got to love that Orange Crush!

No Don't Take Psychology in High School!

In fact don't take psychology anytime. It is a waste of your valuable time!



Your brain on psychology ... wobbly-goop

Here is a scenario that plays out at least a quarter of a million times each year in North America. You are a student and are sat down in May or June of your Grade 10 year to choose your Grade 11 courses.

Your counselor comes to your class to "orient" you and someone asks the dumbest question ever … "what is the easiest science course?"

Your counselor … most likely a psychologist by training … smiles and says "why Psychology is the easiest science course ..."

And so you blindly pass over the boxes for chemistry, biology and physics and rashly check the psychology box off on your Grade 11 course request. Six years later you find yourself leaving university or college deeply frustrated and feeling empty inside with a graduation diploma and no better employment prospect than perhaps to be a barista or … a high school counselor.

Your school counselor has lead your sadly astray … in fact when your school counselor left university or college the best job they perhaps could get was a barista or a high school counselor. It is sort of like what art critics are … failed and unsuccessful artists. Or literary critics … failed and unsuccessful writers.

What is the British idiom …"*what's sauce for the goose is sauce for the gander!*"

Now if you instead had asked the Head of your Science Department what classes you should take in high school they would have said chemistry, biology and physics.

It's not because they wanted to fill their classroom with students. Their classes are crowded enough. Beside they don't want the extra work marking quizzes, tests and exams. No … it's because the Head of your Science Department wants you to be a well-rounded citizen of the world, and to be that you need a good grounding in science. With such a background you will become a successful and happy person.

Do you really want to spend the rest of your life pouring coffee as a barista, pumping gas or sitting as a cahier in a grocery store? If you do … then by all means check off the psychology box.

There is something else you need to know about taking high school or AP Psychology. You can ask your high school friends this directly. The subject is purely subjective and is full of theories and "conjectures that are based on clinical observation."

This modus operandi is in fact not science but wobbly-goop. If you take psychology you will fill your brain with names, dates, conjectures and the like that will send you into a dizzy tizzy and set your up with needless anxiety. At the end of your psychology course you will be the first to stand up and yell out … change the letter e to a in Freud and what do you get?

One student I know who foolishly took AP Psychology told me that he spent more time studying for that single exam than the other four AP exams he took at the same time (AP Calculus, AP Chemistry, AP Biology and AP Physics). He is now in his second year studying nuclear astrophysics at a US University.

His advice to you is Noooo … Don't take Psychology in High School!

Incidentally … Psychology is not a science like Chemistry, Biology and Physics, but a pseudoscience. At the very least you should take Chemistry in Grade 11. At the very most you should try out all three sciences … Chemistry, Biology and Physics in Grade 11. Who knows, you might enjoy the experience.

If you take all three sciences you will not only become a good citizen of the world, your employment prospects will be much broader than barista or school counselor.

When I was in high school and the counselor at our school recommended psychology … I spoke out and said …

“Hell no! I have better things to do with my time.”

I missed out in not taking biology and had to teach myself the subject later, but I did take both Chemistry and Physics and enjoyed both subjects.

On the psychology side I have managed to learn practical workplace psychology … merely by using my common sense… while I worked the past five decades in the physical sciences on over $ 250 million of high technology project work. The Physics and Chemistry I learned proved useful.

I did find better things to do with my time and I would recommend you take heed … don’t waste your time on pseudoscience.

Pictorial: Henri Matisse and Aristide Maillol

Novella:

Living in the Realm of Ideas

Prologia

Were you expecting the vulgar term *Prologue*, or its Latin root *Prologis*? If we are a scholar, we have the right to make up our own words, provided their meaning is understood. Obviously this is the beginning of our *Discourse* … hence *Prologia*. You don't have to be a Chomsky to appreciate language and information …

We all know that our lives are brief and somewhat meaningless. We toil and strive hoping to find purpose in our lives. Some find meaning through the accumulation of material wants, while others find meaning through the exploration of ideas.

When we reach a certain age, which I have reached and then some, we ponder about what we may leave behind as our legacy once we have shuffled off our mortal toils. As expressed by a twentieth century philosopher …

> *Measured objectively, what a man can wrestle from Truth by passionate striving is utterly infinitesimal. But the striving frees us from the bonds of the self and makes us comrades of those who are the best and the greatest.*

My legacy is indeed infinitesimal. My legacy may not be things or offspring. When I expire my meager legacy may only be some of my ideas. I don't have a family, was once married but have long since been divorced. I have not

remarried and have not fathered any children, although it had been one of my hopes. I am estranged from my immediate family because of our different world views (they are materialists, while I prefer ideas) and so there have been times when I have wanted to change my name and make a clean slate of things.

I was close to my mother and carry her creative sensibilities. She was a French teacher, from Montreal, an artist, and a casual acquaintance of Pablo Picasso (as an artist mind you …) But my mother is now gone and I am alone with nothing more than a circle of casual acquaintances and the ideas that bounce around in my head.

Some of these ideas are novel while some are borrowed or abridged. Perhaps this is where we might start our *Sermos des Notiones* … our *Discourse on ideas*. By the way the twentieth century philosopher was … Albert Einstein.

When I was a teenager and wondering what I might do with my life I was enticed into the world of ideas by my reading of both the life and works of Albert Einstein. I could relate to him as a person, but what was most interesting is that he could sit and think for himself and come up with the most remarkable ideas with nothing more than a penchant for physics and mathematics, and pen and a piece of paper.

At a young age I felt that such a mathematican's bohemian life was for me! It is an independent life where you try to understand the universe through physics and mathematics. This meant that I had to understand pure and abstract mathematics, which I think I do, to the extent I can understand and characterize the phenomenon we experience around us. Mathematics is not

an easy subject to master and it is only for the dedicated. In a real sense physicists like Albert Einstein are the monks of Modernity.

I agree with Einstein in that Mathematics is both external to our existence, and eternal in nature. He was quite a romantic when it came to mathematics …

"Pure mathematics is in its way, the poetry of logical ideas."

Nature can be described in many ways, but in no way so grand as through the use of mathematics. And when we accept that we may also eventually accept that we are not more important in the grand scheme of the universe than a bird that flies overhead or any other living creature for that matter, even an ant crawling at our feet. If we accept this then perhaps we can appreciate what it means to think and to have worthy ideas. And if you feel this thought to be without merit I invite you to try to fly without an airccraft, or make a machine as autonomous and remarkable as an ant. You can't can you?

Who invented the term mathematics? It was Pythagoras who over a millennia ago, when he was asked by the hordes why they should bother with numbers, he replied *Mathematicos,* it was something worth learning! Perhaps you also know that it was Pythagoras who came up with this description of himself … "I love knowledge, hence I am a *Philosopher* … "

Are you a Natural Philosopher (aka a scientist)? Do you study mathematics? Can you think like Pythagoras? Perhaps you can to some extend because you remember right triangles, the sine law and the cosine law. Geometry may not have been your forté at school.

Do you know how Archimedes measured the area of a circle – the easy way? He took a circle of radius R, rolled it along to get circumference $2\pi R$ then convinced himself that the area of the circle was in fact the area of the triangle he had made, namely Area = $1/2\ (2\pi R)\ R = \pi R^2$. Isn't that beautiful!

I cannot think of more straightforward and sublime derivation of the area of a circle, unless you consider Sir Isaac Newton's use of Archimedes' idea in his rendering of circular area using Integral Calculus. One idea led to the other …

You might ask were we would be today if the ancient scholars like *Pythagoras* and *Archimedes* had not be so easily pushed aside in the midst of other lesser historical figures. Carl Sagan in his remarkable book and television series *Cosmos* speculated that humanity would now be travelling to the stars aboard ships bearing their names.

Why have these great ideas been pushed aside? You should look in a mirror. It is one thing to say you have read Rousseau, Descartes, Nietzsche or Chomsky. Ah, but can you think like Pythagoras, Archimedes or Albert Einstein? In terms of our contemporary age, do you understand Einstein's physics and philosophy? Rousseau, Descartes, Nietzsche or Chomsky are for the undeveloped thinkers amongst you.

Do you really believe these other pedantic philosophers hold more merit than the likes of Pythagoras, Archimedes or Albert Einstein? Let me take you to task on this.

What Jean Jacque Rousseau, '*Citizen of Geneva*' presented as his 18th views were in fact a reflection of Christian virtue as expressed by a pragmatic Swiss society, a philosophy that both predated him, and existed separate from him. Anyone who appreciates this virtue can say that Rousseau to a degree pays tribute to this virtuous and pragmatic Swiss society. Rousseau is not alone in thinking in this fashion. Were it not for the free thinkers in Geneva it is highly unlikely Rousseau would have ever seen his name in print, let alone his words. Even today, by virtue of their commitment to informed consent Switzerland is a country with a strong democracy, a high standard of living and a high measure of individual freedom and contentment.

In a real sense Rousseau was expressing the spirit of his Protestant times and his *Genevan* place, ideas that preceded and existed outside of his personal sensibilities. You need to realize that the Swiss made Rousseau and not the other way around!

In all fairness philosophers like Descartes, Nietzsche or Chomsky are also the products of their experiences, their time and place. There is very little that is novel in what they have professed. It might take you some time to accept this.

Where did Albert Einstein find solace as a thinker in his formative years as a scientist but in a free and open Switzerland, working as a Patent Clerk in Zurich? It was at his clerk's desk that he had his *Annus Mirabilis* … publishing four papers in 1905 that changed the world! Even his *Gedankenexperimente* (thought experiment) was a method taught to him by a Swiss high school instructor. His ideas are incredible!

When it comes to the kinematic equations for Special Relativity, can you stand and derive an expression for mass dilation in thirty words or less. Well I can, and it has taken half a lifetime to achieve this. I have read enough Rousseau, Descartes, Nietzsche or Chomsky to move onto more pertinent thinkers. Modernity requires the reading of modern thinkers like Einstein, Planck, Heisenberg, Dirac and Feynman.

So what you say? Well, if you cannot understand '*the what'* then the rest of this *Discourse* is really not for you is it. You are perhaps stuck in the past. I want you to look forward into the 21st century and beyond.

Instead, perhaps you want to look back and wax poetic about Rousseau, think naively that Rene Descartes was a fine philosopher or that Nietzsche is worth quoting, and that Chomsky is to be taken seriously. Don't forget that Nietzsche was the favorite philosopher of Oswald Spengler, the Nazis, and political apologists like Paul Feyerabend who was himself a Nazis. Perhaps you are even attracted to the grunge judgements of Chomsky which are a product of the Vietnam War and Watergate.

Compared to the wisdoms of Pythagoras, Archimedes or Albert Einstein, the politics of Nietzsche and Chomsky are *Pop Corn* in so many ways and measures. There are other academics who fit this bill as well, such as Rene Descartes. Rousseau I will admit has some practical value.

A few years ago I wrote a book about Pierre de Fermat in which I commented on the absurd disrespect that Descartes had towards Pierre de Fermat, who is

considered one of the fathers of modern mathematics and to infinitesimal calculus. I received some rather acidic emails from several French mathematicians when I suggested the *Folium of Descartes* should perhaps be renamed as the *Folium of Fermat*, for it was Fermat who answered Descartes' challenged and found the slope of the curve

$$x^3 + y^3 = 6 \, x \, y$$

at the point x = y.

When Fermat, after just a few minutes of effort, provided the answer and wrote back to Descartes, Descartes was so incensed that history has it that he challenged Fermat to a duel. In short order Descartes was invited to leave France or face arrest and imprisonment – his was hardly the actions of a sane and rational man!

Can you find the slope of this expression (it is not a function for it fails the vertical line test) at the two points y = x (two you say!). Can you understand why this curve should be called the *Folium of Fermat?*

Descartes was always eager to claim other people's achievements as his own. For instance when Fermat borrowed the nautical idea of charts to plot curves, Descartes declared he had invented the mapping technique we now call Cartesian. Such nonsense! For what is a French map called but *une Carte*, onto which European navigators were keen to plot their longitude and latitude. When we plot x and y on a Cartesian plot we are plotting longitude and latitude … as if on a nautical chart.

Have you heard the story of the *philosophum porcum* … I stink therefore I am? I share this joke whenever people talk about their admiration for Descartes.

Even in astronomy there are remnants of his silly speculations, his nebulous nebula.

In modern times I have presented a *Two Parameter Turbulence Model* to explain planetary and exoplanetary formation. In undertaking this Modern Astrophysics I have swept away Descartes's nebulous thinking about how planetary systems are formed through the perplexing formation of rotating gas clouds. Circular motion is not natural motion. Sure we have rotating stars, galaxies and exoplanetary systems but we also have the grand radial expansion of the Universe as a whole. Not all galaxies form pin wheels do they, approximately half do not. If circular motion was the norm than all galaxies would form spirals.

If you study fluid flow you understand how linear motion is sometimes translated into circular motion in some situations. The onset of turbulence leads to non-linear flow fields.

We in fact see this in the formation of planetary and exoplanetary systems. In my *Two Parameter Turbulence Model* interstellar gas falls onto the rotating surface of the parent star and then flows outwards until turbulence forms bands of density that with the passage of time coalesce into planets. The angular momentum of these bands of density take from the central star most

of the central star's angular moment. The two parameters are the radius of the central star and the Reynold's Number for a particular material's turbulent onset.

In our solar system moving from the Sun outwards there are five broad categories of planetary types – the terrestrial, the asteroidals, the gas giants, the icy giants and the Kuiper belt *planetesimal* (some of which become comets). They are all joined phenomenologically to a common beginning and a mechanism of their formation.

My *Two Parameter Turbulence Model* is given by the derived expression

$$D = \left(\frac{Re}{32} + 1\right) * (0.9) * R_{Sun}$$

where Re is the Reynold's Number for a particular planetary type, R_{Sun} is the present radius of the Sun, while the factor 0.9 is to correct for the smaller radius of the Sun during planetary formation.

In a series of papers I derived the *Two Parameter Turbulence Model* and characterized the five types of planets in the Solar System. The values for the Reynold's Numbers for the Four Planetary Types in our Solar System are outlined in Table 1:

Planet	**Reynold's Number**	**Distance (A.U.)**
Mercury	3,500	0.465
Asteroid	19,600	2.6

Jupiter	40,000	5.2
Uranus	147,000	19.4
Comets	~ 300,000	~ 40

Table. 1 Reynold's Numbers and Distances for the Five Planetary Types

The noted distance on 0.465 A.U. for Mercury is the planet's aphelion distance for its eccentric orbit. The planet Mercury has a highly eccentric orbit.

When applied to our solar system it provides an *a priori* prediction of the distances and explains the location of Mercury, the asteroid belt object Vesta, the gas giant Jupiter and the ice giant Uranus. By *a priori* it is understood the Reynold's number was predicted and the distances estimated and not the other way around. If the distance was used to estimate the Reynold's number that would be an *a posteriori* hypothesis and useless as a scientific model. We can fit any set of data if we are clever, this is *a posteriori*. It is a different matter if you hypothesis a relationship and then use *a priori* predictions to see how well the model fits reality.

As an comparative example, when you study Einstein's Theory of General Relativity you realize that while the bending of light by the Sun (as well as the advancement of the perihelion of Mercury) were known prior to 1916, it was in the advancing of a self-consistent set of ideas and a good mathematical foundation that allowed Einstein to assert that his Theory of General Relativity was consistent with what was measured in the bending of light (and

the advancement of Mercury's perihelion). In the case of the bending of light, the prediction based on Newtonian physics was half that which was measured in 1919 by Eddington, while Einstein's prediction was within the uncertainty of the measured results, and twice those as predicted by Newtonian Physics. What Einstein's Theory outlined as values for the bending of light (and the advancement of the perihelion) were both *a priori* prediction.

I want you to understand that in my *Two Parameter Turbulence Model* it was only after I had derived the algorithm that I had made assumptions about the Reynold's number for the four types of planetary objects in our solar system.

The first assumption was that the flow for Mercury would be pyroclastic and hence Re = 3,500 for Mercury. This provided a tangible result consistent with observation.

Then there was a four month hiatus while I studied the onset of turbulence for gas flow through a Venturi that I predicted a Reynold's Number of 40,000 for Jupiter. This gives a distance that is within 2 % of Jupiter's distance from the Sun. The venturi would be the asteroid belt.

I then studied the correlation between density and Reynold's number for these two planetary types (Terrestrial and Gas Giant). Using this correlation I used a presumed density for Vesta (slightly higher than frozen water) to estimate a Reynold's Number for an asteroidal object, arriving at 19,600 for Vesta. This provided me the distance of Vesta from the Sun within a high accuracy.

There was a hiatus of two years when one day I had the insight to hypothesize a Reynold's Number for Uranus. With a density of 620 kg / m^3 for methane or ammonium at cold, space like conditions, I estimated a Reynold's number of 147,000 from which I derived the distance for the first of the Icy Giants to within a high accuracy. In doing this estimation I used an obscure NASA article from decades back to find the density of methane or ammonium at cold, space like conditions.

An assumption that follows from my *Two Parameter Turbulence Model* is that comets whic, are objects that originate further out from the Sun than Uranus (Kuiper belt *planetesimal*), would have densities less than 620 kg / m^3. This is in fact what is seen in comets (Halley's comet has a density of 600 kg / m^3 and the object 19P/ Borelly which has a measured density of 300 kg / m^3.

My *Two Parameter Turbulence Model* predicts that the terrestrial planets would have different profiles of heavy elements that relate to elemental densities. The denser elements would be on Mercury and Venus, the less dense here in Earth and on Mars. In a paper a few years ago I hypothesized that within Venus may be found a considerable amount of uranium and thorium which has gone supercritical to not only generate huge internal amounts of heat energy but may have disrupted the core of the planet and therefore any Venutian magnetosphere the planet once had. If we want to mine for gold and other precious or rare earth metals we may in fact be on the wrong planet. NASA intends to send a space probe to Venus to float in the atmosphere and search for evidence that the inside of Venus was once, or may

still be, a giant nuclear reactor. They will also do more thorough elemental assays.

My *Two Parameter Turbulence Model* not only explains planetary and exoplanetary formation, it explains the Bode-Titius Law of Planetary distances, a law that was discovered in the time of Jean Jacques Rousseau but was not understood until my explanation of a handful of years ago. That is a period of around three hundred years! My *Two Parameter Turbulence Model* explains not merely the planetary distances within our solar system, but for a number of interesting systems such as the Trappist-7 exoplanetary system.

My *Two Parameter Turbulence Model* not only explains planetary and exoplanetary formation, it also explains away the *Angular Momentum Paradox*:

> *Why is it that the Sun is 99.99% of the mass of the solar system yet only retains 4 % of the total angular momentum of all objects in the solar system?*

This paradox has been known since 1884, around the times of Hegel and Marx, and was not understood until my explanation of a handful of years ago. That is a period of one hundred and forty years!

This is Occam's Razor, a philosophical idea that a scientific hypothesis, along with being consistent with experiment and observation, explains the maximum possible realm of phenomenon with the minimum of complexity.

Science is not merely about dispassionate thought. Many times the passions of the scientist shows through. If you did not know this, one of the reasons why Sir Isaac Newton stated *Hypothese non Fingo* (I make no conjectures) in his 1713 edition of his *Principia*, was to give followers of Descartes 'the fingo' … as a response to Rene Descarte's asinine and silly metaphysical speculations.

Frankly, I am astonished that Descartes is still taught in philosophy classes. Descartes preceded Newton by half a life time, yet the simplicities of Descartes lingered on well past the age of Newton, particularly among French Philosophers.

The title of Sir Isaac Newton's remarkable 17th century book says it all *Philosophiæ Naturalis Principia Mathematica* literally means *Natural Philosophy* (science) by means of *Mathematical Principles* (I bet you have never opened *Principia* to take a look see!) When 18th century Continental physicists and mathematicians realized why the Englishman Newton had stated *Hypothese non Fingo*, they tried hard to erase the ignominy of *Descartianism* and did 'one up' on Newton by reformulating his kinematics and dynamics not in terms of *infinitesimal Calculus*, but in terms of *Integral Calculus* (e.g. the Lagrangian technique). It was an act of contrition.

Incidentally the term *Descartianism* is of my making to replace the misnomer *Cartianism* which is *le voleur des idees* posthumously laying claim to Cartesian coordinates in mathematics.

Lagrangian's formulation is the nail in Descartes's coffin. In Lagrangian formulation, Pierre de Fermat's *Principle of Least Time*, which describes the motion of light from one point to another, is formulated as a general principle of Kinematics and Dynamics through what has now become known as the *Calculus of Variance*. The *Calculus of Variance* principle would see fundamental application not just in Optics but in Quantum Physics as well. In explaining what light is, during the seventy-five year period from 1875 to 1925, the modern scientific age would be born.

And what about Frederick Nietzsche? Why read Nietzsche when you can read *The Prince* by the Florentine Niccolo Machiavelli? This way you *cut to the chase*. Nietzsche's views led to Oswald Spengler, the rise of German nationalism and a sense of *Manifest Destiny* and well … we all know where what that lead to don't we – to Death Camps like Auschwitz and the extermination of millions during the Second World War.

In contrast to Nietzsche we have Albert Einstein, and his views as a humanist and a Pacifist. In a letter to a student at Rutgers University in December 1950, he outlined this utilitarian view to the student's question about life's purpose:

> *"… it is indeed very reasonable and important to ask ourselves how we should try to conduct our lives. The answer is, in my opinion: satisfaction of the desires and needs of all, as far as this can be achieved, and achievement of harmony and beauty in human relationships. This presupposes a good deal of conscious thought and of self-education."*

This is a plea for a compassionate society that you do not find in Nietzsche's writings.

During the same time period of the life of Nietzsche, Germany saw the likes of Gustav Kirchhoff, who I imagine is someone you have never heard of. He was the greatest Germany physicist and mathematician of the 19th century, and was to his century who Einstein was to the 20th. Gustav Kirchhoff contributed to our fundamental understanding of electrical circuits, to the science of spectroscopy, and to an understanding of the emission of black-body radiation by heated objects, just to name a few of his contributions to science. In 1860 Kirchhoff coined the term Black-Body Radiation and showed that at a fixed temperature the rate of absorption is equal to the rate of emission. As a chemist Kirchhoff also discovered the elements Rubidium and Caesium which in our times play important roles in atomic clocks.

You may remember that you studied Kirchhoff's Circuit Laws in school:

> ***Kirchhoff's First Circuit Law****: The algebraic sum of currents in a network of conductors meeting at a point is zero.*
>
> ***Kirchhoff's First Circuit Law:*** *The directed sum of the voltages around any closed loop is zero.*

If you don't remember Kirchhoff's Circuit Laws, perhaps you remember working with batteries, with amp and Volt meters and with resistors in series and in parallel? Or perhaps Ohm's Law rings a bell in the back of your mind? The many electrical machines you take for granted, from cell phones to

computers, run by the circuit rules set out by Kirchhoff a century and a half ago.

If you have you have studied *Black-Body Radiation* you have also heard of Max Planck. Kirchhoff, Planck and Einstein together explained the relationship between the spectrum emitted by a radiant object and the spectrum of the radiation. In 1900 it was Max Planck who derived the spectrum of *Black-Body Radiation*, where others before him had failed, by using the concept of discrete quanta of light energy.

Then Einstein took up the challenge of explaining the spectrum, leading to an appreciation that it is a dynamic equilibrium, which along with absorption includes both spontaneous and *stimulated* emission of light within a *Black-Body Radiation Hohlraum*. We shall touch on the matter of *stimulated* emission of light further on in this *Discourse*.

In the 19th century, what Gustav Kirchhoff provided the world made for scientific and technological progress, leading ultimately to *Modernity*. The list of his accomplishments is as long as your arm. If you wasted your time reading Nietzsche, at this point in the great *Game of Modernity* … 'you don't pass go and don't get to collect two hundred dollars.' In contrast, what did Nietzsche's *Geist* instigate but death and destruction? Gustav Kirchhoff legacy is more valuable and uplifting.

One could describe Nietzsche as well as many of his contemporaries such as Hegel and Marx, as *obsessives*. In modern times we have had to deal with present-day *obsessives* like Chomsky. Noam Chomsky is an obsessive

amongst academics and anarchists who feel that everything needs to be pushed over or analyzed critically. Just like Hegel and Marx are the opiate of the lazy intellect, so is the grunge writing of Chomsky. In a real sense Chomsky's condescension is the *obsessive's* version of *the pot calling the kettle black.*

I have already presented the view that there are two type of people you will meet in the world, those who are part of the problem, and those who are part of the solution of the problems that confront us. I ask again, which of the two types are you?

Be honest now … *obsessives* like Noam Chomsky are part of the problem, and if you walk in his footsteps so are you. He started out as an anarchist and then wrapped himself in sheep's clothing. If you declare Chomsky the father of cognitive science then I asked you if you know who C. E. Shannon was or Alan Turing was and whether you understand what *Information Theory* and Universal Machines such as computers are really about.

You can easily read the Dr. Seuss of *obsessives* Chomsky (my apologies Mr. Geisel) but can you read Shannon's 1948 paper on entropy and language? When you run Chomsky's writing through an entropy count it is quite revealing Take these words from an interview of Chomsky (taken from the *Chomsky Reader*) from four decades ago. When asked about personal influences he stated:

> *"Of course, there have been, but it is true that I rarely write about these matters. I am not writing about myself, and these matters don't seem*

particularly pertinent to the topics I am addressing. There are things that I resonate to when I read, but I have a feeling that my feelings and attitudes were largely formed prior to reading literature. In fact, I've been always resistant consciously to allowing literature to influence my beliefs and attitudes with regard to society and history …lots of my perceptions were heightened and attitudes changed by literature over a broad range — Hebrew literature, Russian literature, and so on. But ultimately, you have to face the world as it is on the basis of other sources of evidence that you can evaluate. Literature can heighten your imagination and insight and understanding, but it surely doesn't provide the evidence that you need to draw conclusions and substantiate conclusions."

That is a very good example of the *obsessive's* condescension. His words when put through an entropy measure provides a measure of 4.2.

In comparison here are words out of the mouth of a former president known for his condescension and obsession recently convicted on 34 counts of fraud.

"We didn't do a thing wrong … I am innocent. This was a disgrace."

This paragraph when put through an entropy measure also provides a measure of 4.2.

Frankly I see no difference between Chomsky on the one side of the political spectrum and Trump on the other, and neither does Information Theory! See what happens when you put Hitler's words through the same measure! I once

revelled at a meme made of his name on a wall in New York City by an anonymous artist. The meme was in the way of Pac Man the famous video game … *it was Chomsky who ate up all that was in his path and left behind scat.*

If you cannot see where I am going with this can I recommend you read Alfred North Whitehead and Sir Bertrand Russell's *Principia Mathematica* or anything about programming and Universal Machines by scientists like Alan Turing.

When *Modernity* demands better, is your time too valuable to squander it away reading Rousseau, Descartes, Nietzsche and Chomsky? If you propose a *Modern* philosophy, it needs to be rooted in not merely what the best of past has to offer us, but as well as what *Modernity* has to offer us as well. By our sense of pragmatism, we need to be Modern in our *Geist* to come to terms with Modern issues. There was no great golden age as much as there has never been a great golden philosopher. If you haven't sorted this out yet, let me spell it out for you: My *Discourse* to you is about the meaning of *Modernity*.

There is also the issue of our *Welt Geist*. Many a past philosopher have been dystopic in their views. People like Malthus, Nietzsche, Hegel and Marx come to mind. If we must choose between *Dystopia* or *Utopia*, it seems logical to be Utopic. To a simple degree it is the question when you have a choice to be happy or sad, why not be happy … you will live longer. Why not utopic … for the uplifting nature of your philosophy will help you find a Modern way to the future.

If you are Dystopic in your *Geist*, then perhaps I should share with you the anecdote of the philosopher who wanted to prove he did not exist … *One afternoon he stepped out in front of an oncoming bus*. Quod est demonstrat … um!

In the past the dystopic was the norm among most philosophers. In contemporary times, in the 1960's and 1970's again when Dystopia was the norm, Norman Borlaug thought otherwise and presented a utopic view of human possibility, becoming the father of the Green Revolution, and earning a Nobel Peace Prize in the doing. And yes he was a scientist, an agronomist, who was not dragged down by the Malthusian *Geist* or *Pop Culture* propogated at the time.

We understand clearly that humanity is in a foot race with disaster. We have too many people and many more hungry mouths are arriving each day. We have a turbulent international system that seems to be more interested in conflict than compassion. To come first in this foot race, humanity has to strive to be Modern and strive to be Utopic.

Remember, there are two type of people you will meet in the world, those who are part of the problem, and those who are part of the solution of the problems that confront us. Which of the two are you? Be honest now …

Perhaps the last time you studied Chemistry, Biology, Physics and Math was when you were in your teens. Perhaps you aced Psychology in High School, but got a B in Chemistry, Biology, Physics and Math. Now look at you, you

are much older and can say you are up on Pop Culture, and not much more. You are not part of the solution are you?

There is a book that has gathered Einstein's finest ideas. It is titled "*Ideas and Opnions*." If you have not read this book, then you cannot call yourself modern and thoughtful. It should be a book you pick up and read from cover to cover.

Given the nature of our contemporary challenges, we cannot afford such luxurious self-indulgences as Rousseau, Descartes, Nietzsche or Chomsky ... Let their writing gather dust on the shelves shall we. We need to ask you to take Modern science books down and crack them open … or if you no longer visit to libraries, then go online and find a good set of digital resources. They are not too hard to find, such as *Ideas and Opinions* by Albert Einstein, or *The Feynman Lectures on Physics* (which are freely available as part of his estate … thank you Dr. Feynman). There is Erwin Schrodinger's "*What is Life?*" and *The Double Helix* by Dr. Watson of DNA fame. There is also Lev Landau's marvelous series of Physics books. There are Linus Pauling's books on Chemistry, the hydrogen bond and Quantum Chemistry (Linus Pauling won two Nobel Prizes, including a Peace Prize). There are books on solid State Physics by Purcell, Kittel and Bardeen (who won two Nobel prizes in Physics). The list is kong and distinguished.

Let me share with you a snippet from "*Ideas and Opnions*" that touches upon about the issue of the immortality of ideas and Einstein's views on education:

"Bear in mind that the wonderful things you learn in your schools are the work of many generations, produced by enthusiastic effort and infinite labor in every country of the world. All this is put into your hands as your inheritance in order that you may receive it, honor it, add to it, and one day faithfully hand it on to your children. Thus do we mortals achieve immortality in the permanent things which we create in common.

If you always keep that in mind you will find a meaning in life and work and acquire the right attitude towards other nations and ages."

There is not much you can do with a passing grade in psychology or anything metaphysical is there, except pour coffee as a barista or be judgemental and feel proud about your preconceptions. You might even be fixated on *Pop Culture*.

Let us set aside the misconception that merely being contemporary is also being modern. Contemporary means that it is happening in the present. Being contemporary does not in itself mean that you are Modern in your thinking.

The word *Culture* is misunderstood, misused or misinterpreted nearly every time it appears in print or is proclaimed. *Culture* simply means something that is cultivated. Someone has gone out to propagate a message for some specific reason, most time related to the pursuit of wealth or influence. Rarely is the pursuit of truth, virtue and understanding being cultivated. Most culture we see around us is based on vulgar thought. One should perhaps dispense

with the word *Culture* if you can, when expressing your Welt Geist or philosophy.

For the most part at the heart of much of *Pop Culture* is the pursuit of profit. Would that not be a fitting description of fads that draws from Hollywood or Bollywood? And what does *Pop Culture* really represent … not the loftier aspects of human thought … but what has been cultivated with the populace, who haven't set themselves earnestly to the study of Chemistry, Biology, Physics and Math. There is little *Modernity* to be found in *Pop Culture* … and even less worthiness.

The term *Pop Culture* should perhaps be replaced with *Popcorn* – something that is both popular and corny. Figure it that the physicists, electrical and software engineers created the Internet only to see it clogged with *Popcorn* … At least half of what is on the visible web and much that is on the dark web is truly vulgar.

Remember now that humanity is in a foot race with disaster. Is it not clearly evident that we have far too many people, not enough food and fresh air and water … *and now, to boot, we have too much Pop Corn* … How can we push aside the vulgar?

So answer me this. Are you able to come up with valid and meaningful scientific ideas of your own? If you can then perhaps you will want to proceed with this *Discourse*. Science is in many ways the apex of human understanding. It is also the single and most meaningful measure of the *Modern*. If you can't understand science then perhaps you should not think

yourself Modern and stop kidding yourself that you really understand what is going on in this the 21st century.

In this *Discourse* I freely share ideas first expressed by Albert Einstein and some of his compatriots about what *Modernity* means. I will add some ideas of my own. Together these ideas will be challenging. Only you can answer this question: Are you up to the Challenge?

The Sky is Blue

If I were to state to you that '*the sky is blue'* how would you relate to this?

Would you smile and say, great … time to hit the beach?

Would you smile and say, great … time to write some poetry?

Would you smile and say, great … time to be metaphorical … life is good?

Would you smile and say, great time … to explain that the intensity of the scattering of light by the atmosphere goes as the fourth power of the frequency. That this effect is known as *Rayleigh Scattering*, and was first explained in 1871, over one hundred and fifty years ago. Would you say that it is the gaseous version of the *Tyndall Effect* which is the scattering of microscopic particulates suspended in a fluid.

I bet most of you just smiled at the blue sky and packed your bathing suit. Perhaps a handful started to compose a stanza in their head … *How Blue is*

the Sky … one or two would have sense metaphor (these of you who are perhaps introverts).

Only the piteously few Modern and scientific types among you would have appreciated how the frequency of sunlight relates to scattering intensity in the Earth's atmosphere. You would have been introduced to this concept in either high school or first year university physics class. This would have been part of the body of knowledge that related to electromagnetism and optics, a branch of science that was pretty much sorted out a few centuries ago. It would also draw you into Quantum Physics.

If you didn't learn *Rayleigh Scattering* at school then you are nearly two centuries behind the times. So what do you think! Well. Let me ask you this. Why is it some evenings the setting sun sets clouds at the Western horizon red? What causes this?

Pollution you think since you have probably hear someone say this and so you think this by itself is an answer, shrugging the question off. Well it isn't. The answer is that it is caused by *aerosols* in the atmosphere that comes from many different sources … not all of which are pollution. If I were to ask you what an aerosol was could you at least tell me what this is?

> *An aerosol is a suspension of microscopic solid or liquid particulates in a gas. The term aerosol commonly refers to the mixture of particulates and gas, and not just to the particulate matter alone. Examples of natural aerosols are fog, mist or dust. Aerosols can be generated from natural or human causes.*

The red sky at dusk may be due to a forest fire, a dust storm or the remnants of a volcanic eruption half way around the world. Or it may be caused by something man made such the pollution made in the city you reside or an industry close by.

Once again scattering of light is at play but now the *aerosol* scattering the sunlight is very much large in size than oxygen or nitrogen molecules and hence the scattering is at a red wavelength. The blue light is still being scattered by the oxygen and nitrogen in the air, however there are now aerosols which is scattering to a significant degree.

The other factor at play is that the Sun is now low to the horizon and the distance the sunlight has to travel is much greater, perhaps four of five times the vertical actual thickness of the atmosphere. It is only 100 km straight up into the vacuum of outer space. This 100 km height to outer space is known as the *von Karman* line. In comparative terms the thickness of the Earth's atmosphere compared to the radius of the Earth is roughly to the scale of what the peel is to an apple.

Together the size of the aerosol particulates and the distance the light travels through the atmosphere leads to a preferential scattering in the red part of the spectrum. Incidentally Einstein learned this in high school in 1894. So why haven't you?

The mathematics for *Rayleigh Scattering* is straight forward. As a Modern question, if I were to ask you to think of a way of distinguishing between the

different types of *aerosols*. Could you design a way of doing this? Could you sort out the pollutants?

How Fast is Fast?

Let me ask you another simple question. What is the fastest something can travel, say a particle in outer space. Could you answer this question from first principles or would you just state an answer and rely on someone else having done the elucidation for you? This is again something you should have learned in high school or university. It relates to a fundamental principle in Einstein's Theory of Special Relativity.

Say you have two frames of reference moving in uniform motion relative to each other. Say you measure that something is going the speed of light c in one frame, while the other frame is moving at speed v relative to the first frame. Will you measure light going at the speed c + v? Of course not and why not?

Einstein's two postulates are the reason why. In Einstein's Theory of Special Relativity we *postulatise* (if we are scholarly we have the right to make up our own words … right) that

> ***Postulate 1:*** *The Laws of Physics are the same in all inertial frames of reference.*
>
> ***Postulate 2:*** *The speed of light in vacuum (c) is the same for all observers, regardless of the motion of light source or observer.*

The first of these postulates actually dates back to the 17th century and Galileo Galilei. The term relativity relates to the fact we are undertaking a comparison of the relative position, the relative times and relative speed of two objects in relative motion.

So what you think! What practical value does such esoteric matters have?

Well if you have ever used *GPS* (Global Positioning System) two of the time corrections needed to get an accurate fix of your position on the surface of the Earth relates to miniscule time dilations due to both Einstein's Theory of Special Relativity and his General Theory of Relativity, which is also his Theory of Gravitation.

With regards to Einstein's Theory of Special Relativity, the clocks on the GPS satellites show a time dilation compared to clocks on the surface of the Earth due to the speed of the satellite's orbit. The result is an error of about – 7.2 microseconds/day in the satellite.

With regards to Einstein's Theory of General Relativity, there is also a gravitational time dilation, which is due to the gravity field of the Earth. Since the clocks on the Earth are deeper within the gravity well then the clock in orbit, the clocks on the satellite appear to run faster than the GPS receivers on the Earth by about 45.8 microseconds/day.

Combined, these relativistic time dilation cause the clocks on the satellites to gain 38.6 microseconds per day relative to the clocks on the ground, which if

not corrected for would translate into an error measurement of several meters in your GPS position.

Let us go back to the question … will you measure light going at the speed c + v?

The relative speeds as seen in two frames of reference, (u in one frame and u' in the other frame) traveling at speed v relative to each other is given by the expression for the addition of speed in Special relativity, namely

$$u' = \frac{u + v}{1 + \frac{uv}{c^2}}$$

Using some simple calculus you find the extremum for this expression, that is the maximum speed possible, is when u' = u = c where c is the speed of light.

This is easy to confirm, set u' = u = c then

$$c = \frac{c + v}{1 + \frac{c\,v}{c^2}} = c$$

If you *accept the validity* of the Special Theory of Relativity, then this derivation is a definitive answer to this question. During Einstein's lifetime there were scientists who did not accept the validity of his Special and General Theory of Relativity. For the most part it was only in the decades after

Einstein's death in 1955 that these theories became universally recognized and appreciated.

Photons of Light Energy

Light enters our eyes and our retinas create an inverted picture of what we are viewing. The electrical signals are sent to the occipital lobe of our brain which interprets what we see. This interpretation is a product of our experiences from the moment we are born to the moment that we look at something with our eyes.

The process of transduction, the means by which the photon energy is converted into electrical signals was only really sorted out in the middle of the 20th century. The road to this discovery started several hundred years before with the work of the likes of Al Hazen, Witelo, Leonardo da Vinci and Johannes Kepler (who is the patron of optometrists … but I bet you knew this). We also owe mention of Albert Einstein as well.

Transduction in the photoreceptors in our eyes is a result of a change to the shape of the rhodopsin molecule which releases an electrical signal that is carried through a network of neurons thru our brains to the occipital lobe. Transduction is a complicated and organic form of the *Photoelectric Effect*.

In 1921 when Albert Einstein won the *Nobel Prize in Physics* it was not for his work on Relativity. He won it for his work on the *Photoelectric Effect*. It should not surprise you to be told Einstein wrote over 350 science papers in his life time and only a small percentage were about his work in Relativity

and Cosmology. To have some fun with the Nobel Prize Committee Einstein presented a lecture on his Theories of Relativity, for he felt he should have been acknowledged for this work.

If you say you don't know want the *Photoelectric Effect* is then perhaps you can be asked how sound was brought to the movies a few years after the 1921 *Nobel Prize in Physics*. It was using the *Photoelectric Effect* … as a way of transducing light signals into electrical signals, which were then amplified using radio tubes and then projected into the theater using speakers. It seems simple today but a century ago this was not an easy thing to do!

If you estimate how much money has been made off the talkies over the past one hundred years as movies were shown in theatres using sound equipment based on the *Photoelectric Effect* … then we are talking at least a trillion US dollars. There is a reason why people movie actors like Charlie Chaplin fêted the likes of Albert Einstein. Hollywood owed him a great debt for his genius …

Perhaps by the time you read this *Discourse* Hollywood and Bollywood will be a thing of the past? Just as technology evolves so does the appetites of the *Pop Corn* populace.

The *Photoelectric Effect* is the emission of electrons off a material due to impacting electromagnetic radiation. It was first explained in 1905 in a paper by Einstein. It was Max Planck who in 1900 hypothesized that the Energy E of a light photon is related to the frequency of the light ν by the expression

$$E = h\,\nu$$

It was Einstein in his 1905 paper on the *Photoelectric Effect* where he suggested a simple technique in which to measure h.

Following Einstein's suggestion, in 1912 the physicist Arthur L. Hughes and again in 1916 Robert Millikan accurately measured the energy of the emitted electron against the frequency of the incoming photons. Here is how Hughes explained this:

> "*Einstein suggested that, so far as the photoelectric effect was concerned, light could be regarded as being made up of tiny corpuscles, or quanta, each containing an amount of energy equal to hν, where ν is the frequency of the light and h is the famous constant which Planck had introduced into his theory of radiation 5 years earlier. In the absorption of light it was assumed that the quanta disappeared as such but transferred their energy to electrons within the metal and these then escaped as photoelectrons. Hence, the kinetic energy of an escaping electron (KE) should equal the energy of the quantum giving* rise to it (hν), minus the work done in passing through the surface (p).
>
> This result is expressed in the famous Einstein equation,
>
> $$E = KE = h\,\nu - p$$
>
> for the propounding of which Einstein later received the Nobel Prize."

Obviously when you calculate the slope of the line in his expression this gives you an accurate measurement for the Planck's constant h.

If you are as yet not convinced as to the importance of the *Photoelectric Effect* then ask yourself how your computer printer works? The page you are printing is pixelated by your computer then that pixilation is transferred onto the paper and nano-particulates of print material is adhered to the surface of the paper via the *Photoelectric Effect* then the page is heated to fuse the nano-particulates of plastic onto the paper.

You would have been introduced to the *Photoelectric Effect* in either high school or first year university physics class. If you weren't … well once again you missed out (or perhaps messed up in deciding to take soft subjects instead of the hard sciences).

Upwards of ten percentage of the wealth generated in the 20th century relates back to the discoveries made by Max Planck in 1900 ($E = h\nu$), and to Einstein and the *Photoelectric Effect*. At the turn of the 21st century it was stated by a Nobel Laureate that upwards of half of the wealth created in the 20th century arose from the Quantum Physics that was developed using the ideas presented by Planck and Einstein, things like transistors and all solid state devices that are made with Quantum Physics.

Light Amplification by Stimulated Emission of Radiation

Don't you just love acronyms! Does it sound familiar? Remember I mentioned we would return to stimulated emission when we looked at *Black*

Body Radiation. For some of you its meaning is immediate … however for most of you it is not and so you need a bit of help.

LASER … where would we be without the Laser and its microwave equivalent the MASER. And yes, Albert Einstein and a paper he wrote in 1916, played a pivotal role in this amazing technology known as the laser! His contributions continue on to this day in the physics of LED (Light Emitting Diodes) which are in fact small solid state lasers.

If you took ill today you would be rushed to the hospital and put in the care of medical professionals who benefit from the basic and applied science that has been done since the time of Leonardo da Vinci. Every piece of medical equipment the medical practitioners would use to diagnose and treat your condition draws from modern physics.

You might then ask how say astrophysics and medical science are related. How science such as my *Two Parameter Turbulence Model* for planetary and exoplanetary systems are related to say the flow of blood in your veins and arteries. Think about this for a moment before you continue on reading this Discourse. See if you can find four correlations.

The first and most obvious correlation is that both astrophysics and medical science rely on mathematics, which relates back to Pythagoras' notion that *all things in nature can be described in terms of mathematics*.

The second correlation is when you are set inside say a machine, which is defined as a *Tomograph*, to have an X-ray, CT, MRI or PET scan, the entire

machine is a product of basic and applied physics, and in personal terms so is the data collected of you and the manner it is incorporated into a *Tomograph*.

If the term *Tomograph* is new to you let me share a definition:

> *Tomography is the imaging of a physical object by sections uses any kind of penetrating wave energy. The method is used in radiology, archaeology, biology, atmospheric science, geophysics, oceanography, plasma physics, materials science, and astrophysics. Such a piece of equipment designed to provide sections for study is a Tomograph.*

These Tomographs were a product of physics, the more modern of which rely on technology developed in astrophysics, in particular particle physics and nuclear astrophysics. Someone went out of their way to develop the technology for a specific use, and then helped to make this technology available for general use.

A rule of thumb is '*First comes the science then comes the technology!*'

The CCD (Charge Couple Devices) you have on your cell phone found its first applications on space vehicles like the Viking Lander sent by NASA to Mars in 1976, and to telescopes designed to gather light from galaxies billions of light years away. When they were first introduced in the 1970's the first CCD cost hundreds of thousands of dollars and were of poor resolution. Today the CCD in your cellphone is several thousand-fold times better in resolution and costs just a few dollars. CCDs or there more modern equivalent, CMOS, are what is used in many Tomographs. The inventors of

the CCD William Boyle and George E. Smith won the 2009 Nobel Prize in Physics for their 1969 invention. The CCD rely on the photoelectric effect and quantum Physics.

It is also understood that the equipment uses transistor technology, both in the Tomograph and in the computers that are processing the images. Do you know how the different types of transistors work? Did you even know there are different types of transistors? Do you know the inventors of the first transistors won Nobel Prizes in Physics? Do you perhaps know who they are?

Third, were you to take out of the hospital all medical equipment that draws from mathematics as well as basic and applied physics, not even a stethoscope nor thermometer would remain. There also would not be electricity, lights, bells, no air conditioning, no sterile medical instruments and not even the medical instruments themselves. No microscopes, no drugs … nothing.

I mention medicine merely because it is the science that most directly affects the mortality of humans. When you are ill you want to be cured. Without mathematics and physics there would be no modern hospitals, no modern diagnosis and no modern cure. Modernity if very important.

On the road to becoming a doctor there is a gate that all med students have to walk thru – it is second year Organic Chemistry at university. I have a woman friend who wanted to become a doctor. At the end of her second year at university (about two decades ago) she got her final mark for Organic Chemistry and panicked ... 29 %! She called me up in a fret … and after I

listened to her I asked her one simple question … *did you put your name on your final exam*? She couldn't remember so I called the Associate Dean of Science and asked if there was a final exam in Organic Chemistry that did not bear the student's name. There was a nameless exam. It turned out she hadn't put her name on her final. She had aced the final … Well today … she is an established doctor … and never forgets to sign things.

As we near the end of this Discourse let me share with you some words that Einstein set out as the reasons why he chose the life he followed. It comes from a short essay he wrote in French when he was sixteen:

> *"Here are the reasons that brought me to this plan. Above all is the individual disposition for abstract and mathematical thought, the lack of fantasy and of practical talent. There are also my desires, which have inspired in me the same resolve. This is quite natural. One always like to do those things for which one has talent. Besides, there is also a certain independence in the scientific profession that greatly pleases me."*

In some sense this is both the beginning the beginning and the end of this *Discourse*. This leaves me to ponder as to what is truly important in life. Here is a Sermon for you:

Perhaps it is to treat others how you yourself would like to be treated, with kindness, respect and compassion.

Perhaps it is to remember we live not merely for ourselves but for others and that we should strive to return more than we take in our lives so that others may benefit.

Perhaps it is to remember that we are mere passengers on our ride through space and time and we must be optimistic and uplifting.

Perhaps it is to choose to be part of the solution to problems as opposed to being the problem.

Perhaps it is to realize how precious time is and how little of it we have in our lives.

Perhaps it is to realize how important mathematics and science is and how much this makes for *Modernity*!

Perhaps it is the simple realization that what we do helps us earn our place in Heaven.

Wait … you ask how this can be? To ask to be scientific and Modern yet speak of earning a place in heaven. The Latin word *Sermon* means *Discourse*

Whether Heaven exists or not is very much like asking what is past the Event Horizon in a Black Hole … we can venture forth past the threshold of both and not be able to tell to someone outside the realm what is within.

How would someone who profess to be a Modernist and to be scientific speak about Heaven? If you read Einstein's thoughts carefully, he thought along such terms as well. Like him I do not believe there is an *Anthropomorphic Deity* looking down upon my day to day toils. But like him I believe there is a reason why the universe, and mathematics as well as physics are so self-consistent,

Like Einstein I believe there should be some concept of good that we all might aspire to. *Earning one's place in Heaven* is such a good, for this asks us to act with kindness and compassion, to think of others and to try to make the world a better place. A person who follows in the footsteps of Albert Einstein would view not merely science as being self-evident but the humanity as well. We strive and through

"the striving frees us from the bonds of the self and makes us comrades of those who are the best and the greatest."

Pictorial: Dear No, Miss Mayberry – just the head

"Dear no, Miss Mayberry—just the head."

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